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St. Paul
WATER COMM.—
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Wm. N. Baker

FIRST ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE

CITY OF ST. PAUL.

DECEMBER 1, 1882.

ST. PAUL:
DAILY GLOBE PRINT.
1883.

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OFFICERS

OF THE

CITY WATER WORKS,

DECEMBER 1, 1882

BOARD OF WATER COMMISSIONERS.

C. D. GILFILLAN, President, - - -	Term expires June 1, 1886.
C. W. GRIGGS, - - - - - -	" " " 1885.
C. H. BOARDMAN, - - - - -	" " " 1884.
P. H. KELLY, - - - - - - -	" " " 1883.

EDMUND RICE, Mayor, member ex-officio.

JOHN CAULFIELD, Secretary.

JNO B. OVERTON, Superintendent.

L. W. RUNDLETT, Engineer.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,

St. Paul, December 1, 1882.

To the Honorable Common Council of the City of St. Paul:

The Board of Water Commissioners, in their report first made after acquiring by the city the water works, would respectfully state that they transmit herewith the report of the Secretary, showing the financial condition of the Board, estimate of receipts and disbursements for the year 1883, and also the report of the Superintendent, exhibiting the amount and size of pipe laid and gates and hydrants placed and their location, and his recommendations for the laying additional distributing mains for the year 1883, which reports present a fair view of the financial and material condition of the property under our charge.

For some time past surveys have been in progress, looking to the establishing of a line by which the new supply can be brought into the city, and also suitable ground for reservoirs in and near the city.

We are able to state that a suitable line for the aqueduct has been found and which apparently presents no engineering difficulties. The surveys have not progressed far enough to determine the point of entrance for the necessary lines into the city and the site of the reservoirs. The location of these lines and sites will require a great deal of examination and careful engineering, which we expect to have accomplished by June next.

We trust to be able to have a portion of the line of aqueduct completed during the year 1883.

Respectfully submitted,

C. D. GILFILLAN,
C. H. BOARDMAN,
EDMUND RICE,
C. W. GRIGGS,
P. H. KELLY,

Annual Report of the Board of Water Commissioners.

SECRETARY'S REPORT.

OFFICE OF THE CITY WATER WORKS,

St. Paul, December 1, 1882.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—In compliance with the provisions of section 24, chapter 188, of the special laws of the State of Minnesota, approved February 10, 1881, entitled "An act to authorize the City of St. Paul to purchase the franchise and property of the St. Paul Water Company, and creating the Board of Water Commissioners," I have the honor to submit to your Honorable Board of Water Commissioners my first report, with accompanying tables showing in detail, under appropriate heads, the financial operation of the Water Department from August 10, 1882, the time the city obtained possession of the Works, showing the amount of revenue collected from all sources and disbursements made during the same time, new consumers added, balances uncollected, monthly receipts, trial balance, cash on hand and on deposit with the city treasurer, and the estimated revenue for year ending December 1, 1883.

As will be seen from the statement of receipts, I have collected $123 39. $63.06 from First National Bank on account of damage done main on Fourth and Jackson streets, caused by excavating for bank building, and $60.33 from City of St. Paul on account of expense incurred in changing hydrants, caused by change of grade, and have credited the same to repair account, as the expenses incurred were charged that account. I have also collected $65.59, which I have credited extension account. $29.00 from sale of rock from excavations made for water mains and $36.59 for material sold United States for Fort Snelling.

The bonded debt of the city on account of the water works is $510,000. $350,000 of 4 per cent city bonds payable in 30 years, from June 1st, 1882, and $160,000 of 8 per cent. Water Co's bonds, assumed by the city due January 1, 1889. The floating debt is $17,000, which will be reduced in January to $10,000 and in February to about $8,000. I estimate the total water receipts, including miscellaneous receipts for year ending December 1, 1883, at $60,000 and expenses, including interest and maintenance at $36,000, floating debt $17,000, leaving an estimated surplus of $7,000.

There has been 2130 applications made for water since the works were built, f which 269 were made during the past year, being the largest number since the

works were built, with the exception 1870 when the water was first introduced into the city; 118 were made since the city obtained possession of the works.

130 consumers are supplied by meters which are payable monthly; 200 are shut off, leaving 1800 water takers paying card rates. Of the above 200 shut off, about 75 will be turned on within sixty (60) days, being buildings in course of completion, leaving 125 from which the Board receives no revenue; this includes school houses, city buildings, engine houses and public fountains.

There are a small number of consumers now supplied by meters, whose annual rent including the meter does not exceed twelve (12) dollars, and who prefer the meter to the card rates. I would recommend that a rule be adopted by which no water will be furnished to any *meter* consumer for less than twenty dollars per year including the rent of meter.

The following is an explanation of some of the accounts appearing in the Trial Balance:

General Water Receipts account, is receipts from permanent consumers and includes meter receipts.

Miscellaneous Receipts. These are receipts from sale of water to builders, water carts, use of hydrants for cleaning sewers, filling cisterns and street sprinkling.

Connection Account. This is for putting in service pipes from main to property line and includes labor, pipe, brass goods and stop boxes; the receipts from this account are supposed to very near pay expenses of this account.

General Maintenance, includes salaries, stationery and printing; expense of keeping horse, yardman, inspector, and office expenses.

Statement A shows trial balance to December 1, 1882.

Statement B shows monthly receipts.

Statement C shows monthly disbursements.

Statement D shows total receipts and disbursements.

Statement E shows list of vouchers paid.

Statement F shows payments made to City Treasurer, and warrants drawn.

Statement G shows list of meters in use and on hand.

Statement H shows bonded and floating debt.

Statement I shows balances due water board, uncollected.

Statement J shows inventory of office fixtures.

Respectfully submitted,

JOHN CAULFIELD, Secretary

STATEMENT A.

TRIAL BALANCE, DECEMBER 1, 1882.

	DR.	CR.
St. Paul Water Works	$ 510,000.00	
Bond Account		$ 510,000.00
General Water Receipts		4,968.88
Miscellaneous Water Receipts		2,568.62
Connection Account	81.49	
Extension	12,234.85	
General Maintenance	1,674.58	
Repair	59.31	
Meter	311.55	
Construction (new supply)	1,566.80	
Interest	7,008.75	
Geo. Reis, City Treasurer	26,100.00	
First National Bank	1,153.24	
Warrants Drawn		25,937.61
Shutting Off and Turning On Water		4.00
Bills Payable		17,000.00
Cash on Hand	288.51	
	$ 560,479.11	$ 560,479.11

510.00
12,234.85
1,566.80
23802

STATEMENT B.

ABSTRACT OF RECEIPTS FROM AUGUST 10 TO DECEMBER 1, 1882.

DATE—1882.	GEN. WATER REC.		MISCELLANEOUS WATER RECEIPTS.					Connections.	Shutting off and turning on Water.	Repair.	Extension.	Bills Payable.	Total Receipts.
	Semi-Annual	Meter.	Builders.	Water Carts.	Miscellaneous.	Filling Cistern.	Street Spr.						
From August 10 to September 1	$ 135.95	$	$ 65.30	$ 30.56	$ 12.00	$ 10.67	$ 129.87	$ 270.25	$	$	$ 10.00	$	$ 664.60
For September	281.30	1,036.05	140.50	72.45	5.00	100.84	457.70	1,048.47	2.00		45.59		3,189.90
For October	161.95	1,635.55	174.85	52.80	2.00	85.75	448.43	683.95	1.00	82.49	10.00	10,000.00	13,318.77
For November	90.60	1,627.48	290.00	48.15	6.00	144.75	291.00	828.60	1.00	40.90		7,000.00	10,368.48
	$ 669.80	$ 4,299.08	$ 670.65	$ 203.96	$ 25.00	$ 342.01	$ 1,327.00	$ 2,811.27	$ 4.00	$ 123.39	$ 65.59	$ 17,000.00	$ 27,541.75

STATEMENT C.

STATEMENT OF MONTHLY PAYMENTS.

	Sept.	October.	November	Total.
General Maintenance.—				
Salaries	$ 87.50	$ 337.50	$ 361.10	$ 786.10
Stationery and Printing	172.00	40.13	27.00	239.13
Miscellaneous	15.50	41.20	130 89	187.59
Labor	125.75	141.00	152 87	419.62
Material	7.33			7.33
Stable—Feed	12.62	13.24	5.20	31.06
Repairs			3.75	3.75
Connections.—				
Labor	293.06	438.50	504.13	1,235.69
Pipe	319.90	413.34	219.84	953.08
Brass Goods and Stop Boxes	108.13	236.65	109.44	454.22
Tools and Miscellaneous	136.64	25.98	87.15	249.77
Repairs.—				
Hydrants { Labor		8 25	53.13	61 38
Hydrants { Material			6 75	6.75
Valves { Labor	5.25		3.88	9.13
Valves { Material	.30	3.80		4.10
Mains—Labor	15.00	70.12	16.25	101.37
Meters.—				
Labor			9.00	9.00
Freight and Meters		5.05	297.50	302.55
Extension.—				
Pipe and Special Castings		6,965.84	33.91	6,999.75
Labor	321.61	1,691.56	1,184.68	3,197.85
Tools and Repairs of same	11.87	8.55	1.84	22.26
Fire Hydrants		572.00	282.00	854.00
Valves	337.62	151.30	88 40	577.32
Lead and Hemp Packing	124.50	99.12	94.28	317.90
Lumber	16.83	33.26		50.09
Miscellaneous	31.75	230.62	18.90	281.27
Interest Account.—			7,008.75	7,008.75
Construction, (new supply).—				
Miscellaneous	8.00			8.00
Engineering and Right of Way	27.70	258.60	1,272.50	1,558.80
	$ 2,178.86	$ 11,785.61	$ 11,973.14	$25,937.61

STATEMENT D.

The following Statement shows the entire receipts and disbursements from August 10, 1882 to December 1, 1882.

RECEIPTS.

General Water Receipts.—			
Semi-annual	$ 669.80		
Metered	4,299.08		
		$ 4,968.88	
Miscellaneous Water Receipts.—			
Builders	670.65		
Water Carts	203.96		
Cleaning Sewers, &c	25.00		
Filling Cisterns	342.01		
Sprinkling Streets	1,327.00		
		2,568.62	
Connections, putting in services		2,811.27	
Shutting off and turning on water		4.00	
Repair		123.39	
Extension Account		65.59	
Bills Payable		17,000.00	
			$27,541.75

DISBURSEMENTS.

General Maintenance.—			
Salaries	$ 786.10		
Stationery and Printing	239.13		
Miscellaneous	187.59		
Labor	419.62		
Material	7.33		
Stable, feed	31.06		
Repairs	3.75		
		$ 1,674.58	
Connection Services.—			
Labor	1,285.69		
Lead Pipe	953.08		
Brass Goods and Stop Boxes	454.22		
Tools and Miscellaneous	249.77		
		2,892.76	
Repair Account.—			
Hydrants { Labor	61.38		
Hydrants { Material	6.75		
Valves, { Labor	9.13		
Valves, { Material	4.10		
Mains, labor	101.37		
		182.73	
Meter Account.—			
Labor	9.00		
Meters and Freight	302.55		
		311.55	
Extension.—			
Pipe and Special Castings	6,999.75		
Labor	3,197.85		
Tools and Repairs of same	22.28		
Fire Hydrants	854.00		
Valves	577.32		
Lead and Hemp Packing	317.90		
Lumber	50.09		
Miscellaneous	282.27		
		12,300.44	
Interest Account		7,008.75	
Construction Account, (new supply)—			
Engineering and right of way	1,558.80		
Miscellaneous	8.00		
		1,566.80	25,937.61
Balance			1,604.14
Geo. Reis, City Treasurer		162.39	
Cash in Bank		1,153.24	
Cash on Hand		288.51	
			1,604.14

STATEMENT E.

List of Vouchers from August 10, to December 1, 1882.

VOUCHER NO.	TO WHOM PAID.	AMOUNT.
1	Jno. Caulfield, Secretary, Pay Roll for August, from August 10	$ 760 67
2	Robinson & Cary, Hemp Packing, &c	46 87
3	W. A. Judd, Livery	18 50
4	Sanders & Mathews, Cement	6 40
5	Prendergast Bros., Lead Pipe and Tin Pail	185 17
6	H. P. Rugg, Pig Lead and Iron Pipe	153 86
7	Jno. Caulfield, Secretary, Freight paid on Valves	17 22
8	Ranny & Hodgman, Rubber Boots	12 00
9	Dreis & Mitsch, Gasoline	1 50
10	Jno. Caulfield, Secretary, Sundry Bills Paid	7 20
11	A. E. Melgren, Seal	4 00
12	P. H. Kelly & Co., Oil and Candles	14 15
13	H. Mueller, Tapping Machine and Drills	107 65
14	Daily Globe, Blanks, Books, &c	172 00
15	Griggs & Foster, 1 Cord Slabs	3 50
16	Elmer & Newell, Engineering Expenses for August	27 70
17	Geo. J. Exley, Drayage	20 05
18	Menk Bros., Oats and Bran	11 97
19	Farwell, Osman & Jackson, Plumber's Tools	65
20	W. F. Bailey, Brass Goods	96 53
21	Wilson & Rogers, Lead Pipe	81 24
22	Jno. B. Overton, Salary for August	87 50
23	Jno. DeGraw & Sons, Lumber	22 13
24	Boston Machine Company, Valves	320 40
25	Jno Caulfield, Secretary, Pay Roll for September	1,845 43
26	Jno. B. Overton, Salary for September	125 00
27	Jno. Caulfield, Secretary, Salary for August and September	212 50
28	Jno. Caulfield, Paid Freight on Hydrants	50 45
29	Jno. Caulfield, Paid Freight on Meters	5 05
30	Warne Bros. & Co., Sewer for Office	30 00
31	Warne Bros. & Co., Labor Ditching for Water Main on Sherman Street	504 00
32	Eric Nystrom, Labor at Charlies Lake	2 00
33	Pollock, Donaldson & Ogden, Lamps	2 42
34	Breuer & Rhodes, Picks, &c	6 13
35	Simar & Morton, Stone Work and Labor, Lafayette Avenue Bridge	88 34
36	J. G. Duggan & Bro., Blacksmithing	30 85
37	Dreis & Mitsch, Gasoline	1 63
38	J. L. Rood, Repairs	4 00
39	Jno. DeGraw, Lumber	33 26
40	P. H. Kelly & Co., Powder	3 80
41	DePew & Co., Machine Work on 16 inch Main	28 55
42	A. E. Melgren, Stamps for Marking Tools	3 00
43	Geo. J. Exley, Drayage	84 28
44	Griggs & Foster, Wood	7 00
45	Louis N. Scott, Cement	6 40
46	Sanders & Mathews, Cement	8 00
47	Menk Bros., Oats	4 87
48	Robinson & Cary, Hemp Packing, &c	10 21
49	H. P. Rugg, Lead Pipe, &c	67 51
50	Prendergast Bros., Lead Pipe	122 40
51	T. S. White & Co., Stationery	40 13
52	W. F. Bailey & Co., Brass Goods	98 80

759973

53	Elmer & Newell, Engineering Expenses for September	258 60
54	Wilson & Rogers, Pig Lead, Lead Pipe, &c	325 24
55	Bingham & Morgan, Iron Stop Boxes	127 50
56	Boston Machine Company, Valves	151 30
57	R. D. Wood & Co., Hydrants	536 12
58	Shickle, Harrison & Howard Iron Co., Cast Iron Pipe and Specials	6,965 84
59	Jno. Caulfield, Pay Roll for October	1,898 44
60	Union Water Meter Co., Meters	297 50
61	R. D. Wood & Co., Hydrants	464 11
62	Boston Machine Co., Valves	88 40
63	J. B. Overton, Salary for October	125 00
64	Jno. Caulfield, Salary for October	125 00
65	Jno. Caulfield, Paid Freight on Hydrants, &c	20 64
66	McCarthy & Donnelly, Stationery	7 15
67	W. A. Judd, Livery	12 00
68	Pioneer Press, Subscription Daily	4 00
69	Prendergast Bros., Lead Pipe, &c	43 36
70	Robinson & Cary, Pig Lead and Hemp Packing	94 52
71	Menk Bros., Oats and Bran	5 20
72	Thomas Hanley, Shoeing Horse	3 75
73	Griggs & Foster, Coal & Wood	49 50
74	J. G. Duggan & Bro., Blacksmithing	6 80
75	Wilson & Rogers, Lead Pipe, &c	182 32
76	Farwell, Osmun & Jackson, Plumbers Tools, &c	6 50
77	Sanders & Mathews, Cement	6 40
78	Warne Bros. & Co., Stone Mason Resetting Gutters	25 50
78	H. F. Rugg, Soil Pipe, Lead, &c	69 61
80	W. F. Baily, Brass Goods, &c	103 25
81	Jno. H. Donohoe, Carpenter Work and Lumber	33 30
82	J. L. Rood, Windows	3 28
83	Elmer & Newell, Engineering Expenses for October	72 50
84	St. Paul Foundry and Manufacturing Co., Special Castings	33 91
85	Warne Bros. & Co., 70 feet Tunneling for Service	52 50
86	Daily Globe, Stationery	18 89
87	Edmund Rice, Salary as Commissioner, August 10 to November 1, 1882	22 22
88	C. D. Gilfillan, Salary as Commissioner, August 10 to November 1, 1882	22 22
89	P. H. Kelly, Salary as Commissioner, August 10 to November 1, 1882	22 22
90	C. W. Griggs, Salary as Commissioner, August 10 to November 1, 1882	22 22
91	C. H. Boardman, Salary as Commissioner, August 10 to November 1, 1882	22 22
92	Geo. Reis, City Treasurer, to pay Interest due December 1, 1882, and Exchange	7,008 75
93	H. R. Moore, Jr., Land at Vadnais Lake	1,200 00
	Total	$25,937 61

STATEMENT F.

The following Statement shows amount paid the City Treasurer, and Warrants drawn against the same.

Sept. 7	Cash	$ 2,200 00	
Oct. 3	Cash	2,000 00	
Oct. 10	Cash	1,400 00	
Oct. 13	Cash	10,000 00	
Nov. 3	Cash	2,000 00	
Nov. 15	Cash	1,000 00	
Nov. 23	Cash	7,500 00	
			$ 26,100 00

WARRANTS.

Sept. 7	Warrants from 1 to 24 inclusive	$ 2,178 86	
Oct. 4	Warrant No. 25	1,845 43	
Oct. 10	Warrants No. 26 to 52 inclusive	1,575 58	
Oct. 13	Warrants No. 53 to 58 inclusive	8,364 60	
Nov. 3	Warrant No. 59	1,898 44	
Nov. 15	Warrants No 60 to 91 inclusive	1,865 95	
Nov. 23	Warrant No. 92	7,008 75	
Nov. 30	Warrant No. 93	1,200 00	
			$ 25,937 61
	Balance in City Treasury		$ 162 35

STATEMENT G.

METERS.

The total number of Meters in use at the present time is One Hundred and Thirty (130), the sizes and kinds of which are given below.

KIND,	SIZES.						Total
	3	2	1½	1	¾	⅝	
Union,—Piston			1	10	17	25	53
Union,—Rotary	1	1	10	11	24	26	73
Crown				1			1
Worthington				1	2		3
	1	1	11	23	43	51	130

Number of Meters on hand and in good order—

Two ¾ inch Union Rotary.

One ½ inch Union Rotary.

Two 1½ inch Union Rotary.

Two 1 inch Union Rotnry.

STATEMENT H.

BONDED DEBT.

The Bonded Debt of the City on account of the Water Works is $510,000, as follows:

City Bonds, dated June 1, 1882, 4 per cent., 30 years, interest due December 1 and June 1....	$350,000 00
Water Co's Bonds, (assumed by City) 8 per cent., due Jan. 1, 1889, int. due Jan. 10 & July 10.	160,000 00
	$510,000 00

FLOATING DEBT.

Note due January 05, 1883, interest at 8 per cent.....	$ 7,000 00
Note due February 19, 1883, interest at 8 per cent.....	10,000 00
	$17,000 00

STATEMENT I.

The following Statement shows the amount due the Water Board on December 1, 1882.

City of St. Paul, Re-laying 16 inch Pipe on Lafayette Ave.....	$ 4,677 97	
City of St. Paul, Expense Moving Hydrant &c., Robert, caused by Change Grade.	24 18	
City of St. Paul, Rep. Water Pipe, Lafayette near Grove, caused by Sewer Cont'r.	12 56	
City of St. Paul, Repairing Gate Box, E. 7th, caused by Pavement Contractor....	5 25	
City of St. Paul, Repairing Main, Westminster, caused by Sewer Contractor.....	1 75	
City of St. Paul, Hydrant Stream on Broadway.....	1 50	
City of St. Paul, Water for Public Purposes, from August 10 to December 1.	3,542 00	
		$ 8,265 21
Connection Bills, Amount due for Putting in Services, principally during Nov.....		602 10
Builders, about.....		200 00
Total.....		$ 9,067 31

STATEMENT J.

Inventory of Office Furniture and Fixtures—

1 Awning.
1 Level.
1 Compass.
2 City Maps.
1 County Map.
1 Large Map in Frame, for Water Mains, &c.
1 Old Map in Vault, for Water Mains, &c.
1 Counter.
1 No. 40 Garland Coal Stove.
1 Shield (tin).
1 Wood Stove.
1 Stove and Kettle.
1 High Stool.
9 Chairs.
2 Desks.
1 Eight foot Desk.
1 Letter Press.
1 Clock.
1 Letter Box.
4 Ink Stands.
2 Mucilage Bottles.
1 Thermometer.
1 Lamp.
2 Waste Baskets.

SUPERINTENDENT'S REPORT.

ST. PAUL, December 1, 1882.

To the Honorable Board of Water Commissioners.

Gentlemen:

In conformance with the law and rules of this office I have the honor to submit for your consideration a full and detailed statement of the Works and recommendations for the coming year. The principal expense of the Works since the city purchased the Works August 10th, last, has been the re-laying of the 16 inch pipe on Lafayette Avenue caused by change of grade and line of said avenue, leaving some of the old main 25 feet deep; about ⅔ of the old pipe will answer for a permanent sewer, so I am imformed by the city engineer. The following is the amount of pipe laid since August 10th: 963 feet of 4 inch and 2830 feet of 6 inch.

There has been 269 new service connections put in the last year, the largest number since the year after the Works were built. About 50 old ervices were re-constructed.

I would recommend all gate boxes to be of cast iron of the Bingham & Morgan pattern. They are used by a number of cities. The life of wood is about 5 to 8 years when they have to be replaced,and with 198 gates, it is a great annoyance and expense. I would recommend all hydrants that have to be moved to be replaced with a Mathew hydrant and old ones set for the Street Sprinkling Company. It is almost impossible to keep the hydrants in working order for the fire department when they are used by the street sprinklers, or others. A number of them can be set the coming winter.

If all the streets were curbed with stone it would save thousands of dollars to the city in setting the hydrants and stop boxes.

I would recommend the coming year that plumbers put all the service connections in from the mains as it will be impossible with the amount of grading, and paving the coming year for me to have them put in as promptly as they should be, and that kind of work can only be done at a loss to the city and with proper rules and regulations. It can be done by the plumbers without loss to the city. The sand rock tunnelling and part of the rock excavation for mains ought to be done this winter.

I would recommend that action be taken by the board to amend the rules, for there are various defects in the old rules. There is about 50 per cent. of the water of the consumers run to waste or leaking in the services and in case of a great conflagration there would be a shortage of the water supply as fully 50 per cent. of the water delivered in the city is wasted.

I would advise the city to purchase enough of 36 inch. pipe and gate for new sluiceway for Pleasant Lake, as the old flume is in a dangerous condition; and also a 12 inch pipe and gate to replace the flume at Charlies Lake, as the fishermen or hunters tear out the old gate every year.

The following sheets will show the inventory of stock, tools, and quantity, size and location of pipe, hydrants, gates and recommendations for pipe to be laid for the coming year.

J. B. OVERTON,
Superintendent.

LIST OF HYDRANTS.

Number.	LOCATION.	Name of Hydrants.	Size of Pipe.
1	Woodward and Monroe	Holly.	4
2	Grove and Lafayette	"	6
3	Westminster and Waverly	"	6
4	Westminster and Herkimer	"	4
5	Grove and St. Pau	"	6
6	Somersett and Stillwater	"	4
7	St. Paul and Somersett	"	4
8	De Bow and Somersett	"	6
9	Mississippi and Somersett	"	4
10	Grove and Mississippi	"	6
11	Pine and Eleventh	"	4
12	Canada and Pearl	"	6
13	Canada and Spruce	"	6
14	Pearl, between ackson and Canada	"	6
15	Jackson and Pearl	Mathews.	6
16	Robert and Twelfth	Holly.	6
17	Robert and Eleventh	"	6
18	Minnesota and Eleventh	"	6
19	Cedar and Eleventh	"	6
20	Wabashaw and College	"	6
21	W bashaw and Tenth	"	6
22	St. Peter and Tenth	"	6
23	St. Peter and College	"	6
24	St. Peter and Summit	"	6
25	Tenth and College	"	6
26	Tenth, between St. Peter and Fort	"	6
27	St. Peter and Exchange	"	6
28	Wabashaw and Exchange	"	6
29	St. Peter and Ninth	"	6
30	Wabashaw and Ninth	"	6
31	Jackson and Ninth	"	6
32	Cooper and Ninth	"	6
33	Rosabel and Ninth	"	6
34	Pine and Ninth	"	6
35	John and Ninth	"	6
36	Locust and Ninth	Mathews.	6
37	Neill and Eighth	Holly.	4
38	Locust and Eighth	"	16
39	Olive and Eighth	"	4
40	Broadway and Eighth	"	6
41	Wacouta and Eighth	"	4
42	Jackson and Eighth	"	6
43	Robert and Eighth	"	4
44	Burr and Patridge	"	6
45	Burr and Hopkins	"	6
46	Hopkins and De Sota	"	6
47	Oak and Third	"	6
48	Pleasant and Third	"	6
49	College and Third	"	6
50	Exchange and Sherman	"	4
51	Walnut and Exchange	"	4
52	Fort and Ramsey—Double	"	12
53	Fort and Walnut	"	12
54	Fort and Chesnut	"	12
55	Fort, between Third and Chesnut	"	12
56	Seven Corners	"	12
57	Seventh street, back Gruber's Hotel	"	12
58	Seventh and Fifth	"	12
59	Franklin and Seventh	"	12
60	Seventh and Sixth	"	12
61	St. Peter and Seventh	"	12
62	Wabashaw and Seventh	"	16
63	Cedar and Seventh	"	16
64	Minnesota and Seventh	"	16

Number.	LOCATION.	Name of Hydrant.	Size of Pipe.
65	Robert and Seventh	Mathews.	16
66	Jakson and Seventh	Holly.	6
67	Sibley and Seventh	"	16
68	Wacouta and Seventh	"	16
69	Rosabel and Seventh	"	16
70	Broadway and Seventh	"	16
71	Pine and Seventh	"	16
72	Olive and Seventh	"	16
73	John and Seventh	"	16
74	Locust and Seventh	"	16
75	Neill and Seventh	"	6
76	Willins and Sixth	"	4
77	Pine and Sixth	Mathews.	4
78	Jackson and Sixth	Holly.	6
79	Robert and Sixth	"	6
80	Minnesota and Sixth	"	4
81	Wabashaw and Sixth	"	6
82	Washington and Fifth	"	4
83	Wabashaw and Fifth	"	6
84	Cedar and Fifth	"	4
85	Minnesota and Fifth	"	4
86	Robert and Fifth	"	6
87	Jackson and Fifth	"	6
88	Sibley and Fourth—Double	"	6
89	Jackson and Fourth	Mathews.	6
90	Robert and Fourth	Holly.	6
91	Minnesota and Fourth	"	6
92	Wabashaw and Fourth	"	6
93	Washington and Fourth	"	4
94	Exchange and Third	"	6
95	Third Street, between Exchange and Franklin	"	6
96	Franklin and Third	"	6
97	Washington and Third	"	6
98	Market and Third	"	6
99	Washington and Eagle	"	4
100	St. Peter and Third	"	6
101	Wabashaw and Third	"	6
102	Cedar and Third	"	6
103	Minnesota and Third	"	6
104	Robert and Third	"	6
105	Jackson and Third—Double	"	6
106	Sibley and Third	"	6
107	Jackson and Levee	"	6
108	Jackson and Tenth	"	6
109	Jackson and Eleventh	"	6
110	Sibley and Levee	"	4
111	St. Peter and Fifth	"	6
112	Robert and Ninth	"	6
113	Wacouta and Tenth	"	4
114	Mississippi and Nash	"	6
115	Broadway and Twelfth	"	6
116	Broadway and Tenth	"	6
117	Elm and Wilkes	"	4
118	Cedar and Ninth	"	4
119	St. Peter and Fourth	"	6
120	Cedar and Sixth	"	4
121	Franklin and Fourth	"	6
122	Fort and Leech	"	12
123	Stillwater and Grove	"	6
124	De Bow and Grove	"	6
125	Canada and Tenth	"	6
126	Wacouta and Ninth	"	6
127	Eighth and Temperance	"	4
128	Seventh and Willius	"	6
129	Seventh and Kittson	"	6
130	Ramsey and Leech	"	6
131	Collins and Lafayette	"	6
132	Sibley and Sixth	"	6
133	Willius and Fifth	"	4
134	Willius and Eight	"	4
135	Cooper and Tenth	"	4
136	Pleasant, between Third and Chesnut	"	6
137	Pleasant and Chesnut	"	6
138	Pleasant and Walnut	"	6
139	Oak, between Third and Chesnut	"	6
140	Fort, 150 feet South of Tenth	"	6
141	Fort and Ninth	"	6
142	Fort and Sixth	"	6
143	Fort and Fifth	"	6

Number.	LOCATION.	Name of Hydrants.	Size of Pipe.
144	Canada and Thirteenth	Holly.	6
145	Thirteenth, between Canada and Temperance	"	6
146	Thirteenth, head of Temperance	"	6
147	Mississippi and Mount Airy	"	6
148	Mississippi and Glencoe	"	6
149	Mississippi, 200 feet south of Penn Avenue	"	6
150	Mississippi and Penn Avenue	"	6
151	De Bow and Nash	"	6
152	Olmsted and De Bow	"	6
153	Olmsted and St. Paul	"	6
154	Olmsted and Stillwater	"	6
155	Ninth and Exchange	"	6
156	Ninth, front of church	Mathews.	6
157	Wabash w and Summit	Holly.	6
158	Robert and Tenth	"	6
159	Canada and Norris	"	6
160	Norris, head of Cooper	"	4
161	Spruce, head of Wacouta	"	4
162	Spruce, head of Cooper	"	4
163	College, 300 feet north of St. Peter	"	6
164	Fourth and Wacouta	"	6
165	Fifth and Sibley	"	6
166	Walnut and Oak	"	4
167	Fourth and Rosabel	"	6
168	South side of Broadway at railroad	"	4
169	Third and Broadway	"	6
170	Third and Rosabel	"	6
171	Third and Wacouta	"	6
172	Rice and Summit	"	6
173	Fourth and Market	"	6
174	Collins and Bedford	"	6
175	Collins, where Burr intersects	"	6
176	Tenth and Pine	"	6
177	Tenth and Olive	"	6
178	Tenth and John	"	6
179	Fourteenth and Canada	"	6
180	Fourteenth, midway between Canada and Jackson	"	6
181	Partridge and Bradley	"	4
182	North-west corner of Fourth and Broadway	"	6
183	South-west corner of Exchange and Sixth	"	4
184	North-west corner of Burr and North	"	6
185	North-east corner of North and De Sota	"	6
186	Northwest corner of Fifth and Rosabel	"	6
187	North-west corner of Sixth and Rosabel	"	6
188	Pleasant and Sherman	"	6
189	North-west corner of Fourth and Jackson	Mathews.	6
190	John and Fourth	"	6
191	John and Fifth	"	6
192	John and Sixth	"	6
193	Bruno and Lafayette	"	6
194	Lafayette and St. P. M. & M. R. R. track west side	"	16
195	Lafayette, east side of alley of G. L. Becker	"	6
196	Pleasant and north-west corner of Sixth	"	6
197	Jackson and Thirteenth	"	6
198	Jackson and Fourteenth	"	6
	Hydrant corner Locust and Eighth is out leaving 197 in use of which 181 are the Holly and 16 Mathew		

LOCATION AND SIZE OF VALVES.

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	3
Third	Between Cedar and Minnesota					1		
Third	W. line of Jackson					1		
Third	E. line of Jackson					1		
Third	E. line of Wacouta					1		
Third	W. line of Broadway					1		
Third	S. line of Fort					1		
Third	N. line of Fort					1		
Third	N. E. corner of St. Peter					1		
Third	N. W. corner of Washington					1		
Fourth	W. line of Broadway					1		
Fourth	W. line of Wacouta					1		
Fourth	E. line of Jackson					1		
Fourth	W. line of Jackson					1		
Fourth	N. W. corner of Wabashaw					1		
Fourth	N. W. corner of Market					1		
Fifth	E. line of Jackson						1	
Fifth	W. line of Jackson						1	
Fifth	E. line of Minnesota						1	
Fifth	E line of Cedar						1	
Fifth	E. line of Oak						1	
Fifth	S. E. corner of Wabashaw						1	
Fifth	S. W. corner of Wabashaw					1		
Fifth	S W. corner of St. Peter						1	
Fifth	S. W. corner of Washington						1	
Sixth	E. line of Olive						1	
Sixth	W. line of Jackson						1	
Sixth	E. line of Minnesota						1	
Sixth	E. line of Cedar						1	
Sixth	E. line of Fort					1		
Sixth	S. E. corner of Wabashaw					1		
Sixth	S. W. corner of Willius						1	
Sixth	S. E. corner of John						1	
Seventh	E. line of Locust					1		
Seventh	W. line of Jackson			1				
Seventh	Minnesota							1
Seventh	W. line of Market				1			
Seventh	Third Street, Seven Corners				1			
Seventh	Stand Pipe at Wabashaw					1		
Eighth	E. line of Locust						1	
Eighth	W. line of Locust						1	
Eighth	E line of Broadway						1	
Eighth	W. line of Broadway						1	
Eighth	W. line of Jackson						1	
Ninth	E. line of Locust						1	
Ninth	W. line of Locust					1		
Ninth	E. line of Broadway					1		
Ninth	W. line of Broadway					1		
Ninth	W. line of Jackson					1		
Ninth	W. line of St. Pet r					1		
Ninth	E. line of Fort					1		
Ninth	N. E. corner of Wabashaw						1	
Tenth	S. line of College					1		
Tenth	W. line of St. Peter					1		
Tenth	E. line of St Peter					1		
Tenth	E. line of Broadway					1		
Tenth	W. line of Canada						1	
Tenth	E. line of Jackson						1	
Tenth	E. line of Wabashaw						1	
Tenth	N. W. corner of Locust					1		
Eleventh	E. line of Broadway						1	
Eleventh	W. line of Jackson					1		
Eleventh	W. line of Robert					1		
Twelfth	E. line of Broadway						1	
Thirteenth	W. line of Canada					1		

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	3
Thirteenth	N. E. corner of Jackson					1		
Fourteenth	W. line of Canada					1		
St. Peter	N. line of Seventh					1		
Wabashaw	N. line of College					1		
Wabashaw	N. W. corner of Third					1		
Wabashaw	S. W. corner of Fifth					1		
Wabashaw	N. W. corner of Ninth					1		
Cedar	S. line of Fifth					1		
Minnesota	N. line of Third						1	
Minnesota	N. line of Fourth						1	
Minnesota	S. line of Seventh						1	
Minnesota	N. line of Seventh						1	
Robert	N. line of Third					1		
Robert	N. line of Fourth					1		
Robert	N. line of Fifth					1		
Robert	N. line of Seventh					1		
Robert	S. line of Seventh					1		
Robert	N. line of Eighth					1		
Robert	S. line of Eleventh					1		
Jackson	At Levee						1	
Jackson	At Levee							1
Jackson	S. line of Fourth					1		
Jackson	N. line of Seventh					1		
Jackson	S. line of Seventh					1		
Jackson	N. line of Eighth					1		
Jackson	N. line of Ninth					1		
Jackson	S. line of Twelfth					1		
Jackson	N. E. corner of Pearl					1		
Jackson	S. E. corner of Fourteenth					1		
Sibley	S. line of Third						1	
Sibley	N. line of Third					1		
Sibley	S. line of Fifth					1		
Sibley	S line of Seventh					1		
Wacouta	S. line of Seventh						1	
Wacouta	N. line of Tenth						1	
Rosabel	S. line of Fourth					1		
Rosabel	N. line of Fifth					1		
Rosabel	S. line of Seventh					1		
Pine	N. line of Ninth						1	
Broadway	N. line of Seventh					1		
Broadway	N. line of Grove					1		
Olive	S. line of Seventh						1	
Olive	S. line of Grove						1	
John	S. of Tenth						1	
John	S. E. line of Seventh					1		
John	N. E. line of Fifth					1		
Locust	N. line of Seventh			1				
Willius	S. line of Seventh						1	
Willius	N. line of Fifth						1	
Neill	N. line of Seventh						1	
Fort	N. line of Walnut							1
Fort	N line of Third				1			
Fort	N. line of Fourth					1		
Fort	N. line of Sixth					1		
Fort	S. line of Tenth					1		
Fort	S. E. corner of Ramsey				1			
Leech	S. W. corner of Leech and Ramsey					1		
Oak	N. line of Third					1		
Oak	S. line of Third					1		
Oak	N. line of Walnut					1		
Pleasant	N. line of Walnut					1		
Pleasant	S. line of Third					1		
Pleasant	N. E. corner of Third					1		
Market	N. E. corner of Third						1	
Chesnut	E. line of Fort					1		
Walnut	E. line of Fort						1	
Walnut	W. line of Fort						1	
Walnut	E. line of Pleasant						1	
Exchange	N. line of Sherman						1	
Exchange	N. line of Seventh						1	
Exchange	W. line of St. Peter						1	
Exchange	S. line of Ninth						1	
Washington	S. W. line of Third						1	
Washington	N. W. line of Third						1	
Washington	N. W. line of Fourth						1	
College	W. line of St. Peter					1		
College	E. line of Wabashaw					1		
Norris	W. line of Canada						1	
Cooper	N. line of Ninth						1	

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	3
Cooper	N. line of Spruce	....	....	....	....	....	1	....
Cooper	N. line of Tenth	....	....	....	....	....	1	....
Temperance	N. line of Eighth	....	....	....	....	....	1	....
Temperance	N. line of Pearl	....	....	....	....	....	1	....
Pearl	E. line of Jackson	....	....	....	....	1	....	....
Canada	N. line of Ninth	....	....	....	....	1	....	....
Canada	S. line of Pearl	....	....	....	....	1	....	....
Canada	N. line of Pearl	....	....	....	....	1	....	....
Mississippi	N. line of Grove	....	....	....	....	1	....	....
Mississippi	N. line of Nash	....	....	....	....	1	....	....
Mississippi	N. line of Glencoe	....	....	....	....	1	....	....
Grove	W. line of Lafayette	....	....	....	....	1	....	....
Grove	W. line of Mississippi	....	....	....	....	1	....	....
Somersett	W. line of Stillwater	....	....	....	....	....	1	....
Somersett	E. line of Debow	....	....	....	....	....	1	....
Somersett	W. line of Debow	....	....	....	....	....	1	....
Nash	E. line of Mississippi	....	....	....	....	1	....	....
Waverly Place	W. line of Lafayette	....	....	....	....	1	....	....
Waverly Place	E. line of Stillwater	....	....	....	....	1	....	....
De Bow	S. line of Olmsted	....	....	....	....	1	....	....
De Bow	N. line of Grove	....	....	....	....	1	....	....
St. Paul	S. line of Olmsted	....	....	....	....	....	1	....
St. Paul	N. line of Grove	....	....	....	....	....	1	....
Stillwater	N. line of Grove	....	....	....	....	....	1	....
Stillwater	S. line of Olmsted	....	....	....	....	1	....	....
Lafayette	S. line of Collins	....	....	1	....	....	....	....
Lafayette	At Bridge	....	....	....	....	....	....	1
Lafayette	Alley near G. L. Beckers	....	....	....	....	1	....	....
Lafayette	End of retaining Wall	....	....	....	....	....	1	....
Lafayette	At Hydrant at Bridge	....	....	....	....	....	1	....
Collins	E. line of Lafayette	....	....	....	....	1	....	....
Hopkins	E. line of Desota	....	....	....	....	1	....	....
De Sota	S. line of Collins	....	....	....	....	1	....	....
Bruno	S. E. corner of Lafayette	....	....	....	....	1	....	....
Burr	S. side of North	....	....	....	....	1	....	....
Burr	S. side of Hopkins	....	....	....	....	1	....	....
Bradley	N. W. corner of Patridge	....	....	....	....	1	....	....
Franklin	N. W. corner of Seventh	....	....	....	....	....	1	....
Otsego	N. W. corner of Lafayette	....	....	....	....	1	....	....
Patridge	N. W. corner of Bradley	....	....	....	....	....	1	....
Sherman	N. E. corner of Exchange	....	....	....	....	1	....	....
VALVES ON MAINS FROM DESOTA STREET TO LAKE PHALEN.								
On 24 Inch Main	At Gate House	1	....	....	....	....	....	....
" 24 " "	At Plow Works	1	1	....	....	....	....	....
" 24 " "	Blow off near Railroad, Plow Works	....	....	....	....	1	....	....
" 24 " "	Relief Valve near Railroad, Plow Works	....	....	....	....	1	....	....
" 16 " "	At Gate House	....	1	....	....	....	....	....
" 16 " "	Creek at Harvester Works	....	....	1	....	....	....	....
" 16 " "	At Plow Works	....	....	1	....	....	....	....
" 16 " "	Seventh Street and Phalen Creek	....	....	1	....	....	....	....
" 16 " "	Payne and Ross	....	....	1	....	....	....	....
" 16 " "	Seventh and Phalen Creek—Blow off	....	....	....	....	....	....	1
" 16 " "	Forrest and Cypress—Blow off	....	....	....	....	....	....	1
" 16 " "	North line of Arcade	....	....	....	....	....	....	1
Total to December 1, 1882		2	2	7	4	107	68	7
Number laid in 1882		....	....	....	....	11	6	....

LOCATION, SIZE AND AMOUNT OF WATER MAINS

LAID FROM AUGUST 10, 1882 TO DECEMBER 1, 1882.

		4 Inch.	6 Inch.	Total.
Water on August 15, 1882	Pleasant Avenue, north of Sherman	.....	95	95
" " August 19, 1882	Bradley, north of Patridge	.....	165	165
" " September 5, 1882	E. Sixth, below Broadway	588	.....	588
" " Sept. 14, 1882	John, Sixth and Seventh below Gas Works	.....	455	455
" " October 3, 1882	Sherman, Exchange to Bluff	.....	518	518
" " November 5, 1882	Tenth, west of Locust	.....	65	65
" " November 5, 1882	Otsego, north of Lafayette	.....	95	95
" " October 14, 1882	Bruno, east of Lafayette	.....	47	47
" " October 14, 1882	Lafayette, Junction near Main, towards Creek	205	.....	205
" " October 30, 1882	Jackson, between Pearl and Fourteenth	.....	610	610
" " October 28, 1882	Pleasant, Third to Sixth	.....	408	408
" " October 30, 1882	13th, from Jackson towards Temperance	.....	72	72
" " Nov. 8, 1882	Rosabel, from Third to Fourth	.....	300	300
" " Nov. 17, 1882	Franklin, from Seventh to Ninth	170	.....	170
	Total	963	2830	3793

LOCATION, SIZE AND NUMBER OF FEET OF WATER PIPES,

LAID TO DECEMBER 1, 1882

	4 inch.	6 inch	12 Inch.	16 Inch.
E. Third Street from Wabashaw to Broadway	.....	2,921	.....	.....
W. Third from Wabashaw to College	.....	3,873	.....	.....
E. Fourth from Cedar to Broadway	.....	2,368	.....	.....
W. Fourth from Wabashaw to Franklin	.....	1,495	.....	.....
E. Fifth from Wabashaw to below Willius	2,107	.....	.....	.....
W. Fifth from Wabashaw to near Seventh	1,897	.....	.....	.....
E. Sixth from Wabashaw to below Willius	2,970	.....	.....	.....
W. Sixth from Fort to Exchange	.....	431	.....	.....
E. Seventh from St. Peter to Kittson	.....	837	.....	4,250
W. Seventh from St. Peter to Seven Corners	.....	.....	1,675	.....
E. Eight from Minnesota to below Neill	3,978	.....	.....	.....
E. Ninth from Wabashaw to below Neill	1,213	2,079	.....	.....
W. Ninth from St. Peter to Fort	.....	1,075	.....	.....
E. Tenth from Wabashaw to Locust	1537	888	.....	.....
W. Tenth from Wabashaw to College	.....	1,245	.....	.....
E. Eleventh from Cedar to Olive	565	1,159	.....	.....
Twelfth from Robert to Pine	280	4	.....	.....
Thirteenth from Jackson to Canada	.....	1,000	.....	.....
Fourteenth from near Jackson to Canada	.....	791	.....	.....
Broadway from River to Mississippi	195	1,416	.....	.....
Burr from Patridge to North	.....	918	.....	.....
Bradley from Patridge to Hopkins	.....	165	.....	.....
Bruno from Lafayette to North	.....	47	.....	.....
Alley from Lafayette to De Sota	300	150	.....	.....
Canada from Ninth to Fourteenth	.....	1,815	.....	.....
Chestnut from Fort to Exchange	.....	156	.....	.....
Cooper from Ninth to Spruce	986	.....	.....	.....
Cedar from Fifth to College	288	262	.....	.....
Collins from Lafayette to Bedford	.....	971	.....	.....
College from Cedar to Rice	.....	672	.....	.....
De Bow from Grove to Olmsted	.....	960	.....	.....
De Sota from Alley to Collins	.....	425	.....	.....
Exchange from St. Peter to Wilkin	2,397	.....	.....	.....
Fort from Tenth to Leech	.....	1,537	1,965	.....
Franklin from Seventh to North	170	.....	.....	.....
Grove from Monroe to Mississippi	133	1,850	.....	.....
Jackson from Levee to Fourtenth	.....	4,332	.....	.....
John from Fourth to Tenth	314	815	.....	.....
Lafayette from Grove to Collins	205	.....	.....	2,120
Leech from Fort to Ramsey	.....	270	.....	.....
Levee from Sibley to Jackson	340	.....	.....	.....
Locust from Grove to Seventh	.....	.....	.....	1,025
Market from Third to Fourth	250	.....	.....	.....
Minnesota from Third to Eighth	1,742	.....	.....	.....
Mississippi from Grove to Railroad Bridge	.....	2,676	.....	.....
Monroe Place from Grove to Woodward	300	.....	.....	.....
Hopkins from De Sota to Bradley	362	248	.....	.....
Norris from Canada to Cooper	575	.....	.....	.....
Neill from Seventh to Eighth	325	.....	.....	.....
Nash from Mississippi to De Bow	.....	355	.....	.....
North from De Sota to Burr	.....	363	.....	.....
Olmsted to Stillwater to De Bow	.....	623	.....	.....
Olive from Sixth to Grove	514	.....	.....	.....
Oak from Fifth to Walnut	.....	685	.....	.....
Otsego from Lafayette to North	.....	95	.....	.....
Pearl from Jackson to Grove	.....	1,110	.....	.....
Pine from Ninth to Elventh	593	.....	.....	.....
Pleasant from Sixth to Sherman	.....	1,865	.....	.....
Patridge from De Sota to Bradley	472	.....	.....	.....

	24 Inch.	4 Inch.	6 Inch.	12 Inch.	16 Inch.
Rice from College to Summit	.....	.....	501	.....	.....
Robert from Third to Twelfth	.....	.....	2,824	.....	.....
Rosabel from Third to Seventh	.....	.....	1,401	.....	.....
Sibley from Levee to Seventh	.....	325	1,450	.....	.....
Somerset from Stillwater to Mississippi	.....	1,013	.....	.....	.....
Stillwater from Grove to Olmsted	.....	910	50	.....	.....
St. Paul from Grove to Olmsted	.....	960	.....	.....	.....
St. Peter from Third to Summit	.....	.....	2,271	.....	.....
Spruce from Cooper to Wacouta	.....	400	.....	.....	.....
Sherman from Exchange to Bluff	.....	.....	518	.....	.....
Temperance from Eighth to Thirteenth	.....	688	.....	.....	.....
Wabashaw from Third to Summit	.....	.....	3,362	.....	.....
Wacouta from Sixth to Spruce	.....	590	.....	.....	.....
Walnut from Pleasant to Exchange	.....	1,438	.....	.....	.....
Washington from Fifth to below Eeagle	.....	1,446	.....	.....	.....
Willius from Seventh to Fifth	.....	550	.....	.....	.....
Waverly Place from Lafayette to Stillwater	.....	.....	340	.....	.....
Westminster from Waverly Place to North	.....	605	75	.....	.....
From De Sota and Collins to Lake Phalen	7,000	.....	.....	.....	15,964
	7,000	33,933	58,963	3,640	23,359

TOTAL PIPE LAID DECEMBER 1, 1882.

4 Inch	33,933
6 "	58,963
12 "	3,640
16 "	23,359
24 "	7,000

126,895 ft. or 24 175-5280 miles.

PIPE RECOMMENDED TO BE LAID IN 1883.

STREET.	4 Inch.	6 Inch.	12 Inch.	16 Inch.
Wacouta from Third to Seventh		1,400		
Wacouta from Seventh to Eighth	310			
Fifth from Sibley to Broadway	925			
Sixth from Jackson to Broadway	1,300			
Broadway from Third to Seventh				1,400
Cedar from Thirth to Tenth			2,550	
Kittson from Fourth to Seventh		825		
Fifth from John to Kittson		1,025		
Sixth from Willius to Kittson	500			
Neill from Fifth to Seventh	525			
Bradley from Woodward to North		810		
North from Burr to Bedford		450		
Bedford from North to Minnehaha		1,350		
Burr from Collins to Farquhar		1,650		
Beaumont from Bedford to De Sota		850		
Otsego from Lafayette to Mount Ada		750		
Westminster from present pipe to Railroad Bridge		900		
Thirteenth and Somersett from Canada to Mississippi		725		
Fourth from Minnesota to Wabashaw		800		
Ninth from Robert to Cedar		750		
Fort from Leech to Western				2,900
Oak to connect both ends at Chesnut		400		
Wilkin and Sherman from Fort to Railroad		1,300		
McBoal from Wilkin to Douglas		1,300		
Forbes and Pleasant from Goodhue to Pleasant		2,050		
College from Wabashaw to St. Peter		400		
College from dead end to Tenth		425		
Sixth from Seventh to Exchange		600		
Franklin from Seventh to Ninth	350			
Temperance from Tenth to Pearl	850			
Norris from Temperance to Cooper	200			
Tenth from Locust to John		225		
Tenth from Canada to Broadway	350			
Robert from Ninth to Tenth		375		
Sibley from Seventh to Eighth	300			
Leech from Fort to Goodrich		1,000		
	5,610	20,360	2,550	4,300

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1882.

24 feet, 24 inch cast iron pipe.
3 feet, 24 inch cast iron pipe.
218 feet, 16 inch cast iron pipe.
11 feet, 16 inch cast iron pipe.
18 feet, 12 inch cast iron pipe.
72 feet, 6 inch cast iron pipe.
264 feet, 4 inch cast iron pipe.
1 — 16x6 — 4 way.
2 — 16x6 — 3 way.
1 — 16x4 — 3 way.
1 — 16x3 — 3 way.
7 — 16 in. curvature pipe.
2 — 16 in sleeves.
6 — 6x6 — 4 way.
5 — 6x4 — 4 way.
7 — 6x4 — 3 way.
1 — 6x3 — 3 way.
1 — 4x4 — 4 way.
9 — 6 inch ¼ bends.
5 — 6 inch ⅛ bends.
1 — 6 inch to 4 inch reducer.
5 — 4 inch ¼ bends.
4 — 4 inch ⅛ bends.
10 — 6 inch sleeves.
8 — 4 inch hoods.
3 — 4 inch sleeves.
12 — 4 inch plugs.
8 — 6 inch plugs.
230 lbs. pig lead.
227 tea lead.

HYDRANTS.

5 — 7 feet hydrants complete.
1 Bingham and Morgan iron valve for 12 inch.
2 gate covers and boxes for 6 or 4 inch.
4 — 6 inch Gates Boston Machine Co.
2 — 4 inch Gates Boston Machine Co.
1 — 3 inch Gate Boston Machine Co.
1 — 6 inch Gate Ludlow.
1 — 4 inch Gate Brown.
1 — 3 inch Gate for wrought iron pipe.
1 — 2½ inch Gate for wrought iron pipe.
1 — 2 inch gate for wrought iron pipe.
72 lbs. hemp packing.

PIPE LAYING TOOLS.

2 lead pots.
2 furnaces.
3 derricks.
1 pair tackle blocks.
1 pair tackle blocks and fall.
1 windlass.
2 sec. hose and hydrant connection for same.
1 tunnell truck.
1 pipe truck.
3 iron caps for drawing sheeting.
5 gate wrenches.
2 pair rubber mitts.
4 pair rubber boots.
3 hand saws.
1 buck saw.
9 lanterns.
4 oil cans.
1 4 inch wrecking pump.
2 large monkey wrenches.
1 small monkey wrench.
1 ladder.
21 D handles and round mouth shovels.
20 picks.
1 long handle shovel.
2 axes.
1 hand ax.
2 chains for drawing sheeting.
3 chains 15 feet long.
1 heavy chain for blasting.
32 blasting logs.
12 sand rock picks.
1 lake dredge scraper.
10 buckets.
2 dirt rammers.
2 paving rammers.
6 pick handles.
2 sledge handles.
2 pipe scrapers.
4 tunnel wheelbarrows.
3 extra wheels for tunnel wheelbarrows.
1 dirt wheelbarrow.
13 mall rings.
1 grab hook for lake.
2 pair of grab tongs.
1 hoisting bucket.
2 plug and feather drills.
1 set plug and feathers.
103 lbs. cast steel.
4 steel crowbars.
1 pipe bar.
2 pipe rammers.
2 rock drills, double ends.
3 scrapers for rock drills.
1 puddling bar and wrench.
4 tamping bars.
2 striking hammers.
2 short jumpers.
1 long jumper.
2 rock wedges.
1 grind stone.
2 hand hammer handles.
3 pipe cutting chisels.
1 hammer for pipe cutting chisel.
2 pair tongs for caulking.
4 caulking hammers.
7 yarning tools.
17 caulking tools, steel.
4 cape chisels.
8 cold chisels.
3 diamond point chisels.
1 box clay.
2 tool boxes.

DUPLICATE FOR HYDRANTS AND REPAIRS.

6 valves for Mathew hydrants.
2 ring valves for Mathew hydrants.
1 steamer for thawing hydrants.
2 sleeve nuts for thawing hydrants.
3 7 feet outside casings for Holly hydrants.
3 7 feet inside casings for Holly hydrant.

Inventory of Stock and Tools, December 1, 1882, *Continued.*

8 6 foot outside casings for Holly hydrants.
1 8 foot inside casing for Holly hydrants.
2 7 feet stems for Holly hydrants.
11 6 feet stems for Holly hydrants.
3 7 feet hydrant tops for Holly hydrants complete.
18 6 feet hydrant tops for Holly hydrants complete.
2 7 feet hydrant pots.
8 6 feet hydrant pots.
3 hydrant pots for tunnel.
5 4 inch flanges for wrought iron pipe.
6 7 feet hydrant valves complete.
14 6 feet hydrant valves complete.
8 valves in complete.
47 pairs of 7 feet hydrant packing.
3 pair 6 feet hydrant packing.
4 galvanized iron tops and hydrant boxes.
1 box hydrant bolts.
1 kit tools repairing hydrants.
4 hydrant boxes.
17 feet 4 inch wrought iron pipe.
5 hydrant wrenches.

CONNECTION ACCOUNT.

16 feet 3 inch galvanized iron pipe.
35 feet 2 inch black iron pipe.
450 feet ¾ inch galvanized iron pipe.
40 feet 1½ inch galvanized iron pipe.
16 feet 1 inch galvanized iron pipe.
20 feet 1¼ inch galvanized iron pipe.
1 platform scale.
5 feet 2½ inch galvanized iron pipe.
1 lot of iron pipe fittings L. and Tees from ½ to 2 inch.
4 4 inch couplings.
1 4½ inch coupling.
½ box candles.
20 gallons kerosene oil.
½ gallon lard oil.
1 keg blasting powder.
50 feet fuse.
15 lbs. horse shoe nails
1 pipe vice.
1 force pump.
1 set of stock and dies for ¾ to 1 inch.
2 wrought iron pipe cutters.
2 pair extension tongs.
5 pair tongs from ¾ to 2 inch.
1 oil stone.
1 crow foot.
1 ratchet.
1 1¼ inch tap.
1 1½ inch drill.
1 1 inch drill.
1 1 inch tap.
1 ⅞ inch drill.
2 ⅞ inch taps.
1 ⅝ inch drill.
2 ⅝ inch taps.
1 ⅝ inch drill.
1 ⅝ inch tap.
1 ⅝ inch drill for drive tap.
2 ½ inch drills for drvie tap.
1 1 inch drill for cement pipe.
1 ¾ inch drill for cement pipe.
1 ⅝ inch drill for cement pipe.
2 ½ inch drills for cement pipe.
2 ⅜ inch drills for cement pipe.
2 braces.
2 plummer's hammers.
1 monkey-wrench.
1 rasp.
3 files.
1 shave hook.
2 soldering irons.
1 cold chisel.
1 plumbing iron.
1 plumbers hatchet iron.
1 plumbers ladel.
2 gasoline furnaces.
2 solder pots.
1 2 gallon gasoline can
1 pair plyers.
1 saw.
1 screw driver.
1 acid bottle.
1 compass saw.
1 Muller tapping machine complete.
4 poles for setting stop boxes.
1 clay auger.
1 sand auger.
6 stop box keys.
2 sets of 4 inch pipe moulds for stop boxes.
3 connection drills.
1 sand pump for connection drills.
2 connection scoops.
6 1 inch corporation taps for Mueller machine.
11 ¾ inch corporation taps for Mueller machine.
10 ½ inch corporation taps for Mueller machine.
6 ⅜ inch corporation taps for Mueller machine.
1 ⅜ inch corporation taps for wrought iron and cement pipe.
10 ½ inch corporation taps for wrought iron and cement pipe.
2 ¾ inch corporation taps for wrought iron and cement pipe.
3 1 inch corporation taps for wrought iron and cement pipe.
9 ⅜ inch corporation taps to drive.
8 ½ inch corporation taps to drive.
6 ¾ inch stop cocks for lead pipe.
12 ⅝ inch stop cocks for lead pipe.
1 ¾ inch stop cock for lead pipe.
2 1 inch stop cocks for lead pipe.
26 lbs. solder.
272 lbs. ½ inch lead pipe.
1127 lbs. ⅝ inch lead pipe.
197 lbs. ¾ inch lead pipe.
86 lbs. 1 inch lead pipe.
174 lbs. 1¼ inch lead pipe.
68 lbs. 1½ inch lead pipe.
12 ½ inch plain bibbs lead pipe
20 ⅝ inch plain bibbs lead pipe.

Inventory of Stock and Tools, December 1, 1882, *Continued.*

1 ½ inch hose bibbs lead pipe.
4 ¾ inch hose bibbs iron pipe.
7 ½ inch stop cocks for iron pipe.
9 ¾ inch stop cocks for iron pipe.
1 1 inch stop cock for iron pipe.
73 pieces of 4 inch cement pipe.
3 barrels cement.

GATE DUPLICATES.

2 16 inch gate stems.
1 16 inch nut and wedge.
6 6 inch stems.
1 6 inch top.
7 4 inch stems.
2 3 inch stems.
1 pair 4 inch faces.
2 4 inch nuts and wedges.
1 3 inch nut and wedge.
7 gate nuts for top.

MISCELLANEOUS AND STABLE ACCOUNT.

1 truck horse.
1 set single harness.
1 dutch collar.
1 tie strap and block,
2 horse blankets.
1 whip.
1 truck.
1 pair bobb sleighs.
1 feed box.
3 forks.
1 wagon jack.
200 feet lumber.
1 anvil.
20 lbs. 20 penny nails.
1 iron vice.
1 truck skid.
1 farmers pot.
1 sheet iron stove.
1 drawing knife.
1 branding iron.
1 steel stamp for marking tools.
2 ¾ inch augers.
1 1 inch auger.
1 1¼ inch auger.
1 iron square.
1 2 inch framing chisel.
1 gallon measure.
2 funnels.
1 S wrench.
2 mason's trowels.

METER ACCOUNT.

IN GOOD ORDER.

2 ¾ inch.
1 ½ inch.
2 1½ inch.
2 1 inch.

IN BAD ORDER

1 1½ inch union rotary.
2 ¾ inch union rotary.
3 ⅝ inch union rotary.

Rinn
W. N. Baker 1907

SECOND ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE

CITY OF SAINT PAUL.

DECEMBER 1, 1883.

ST. PAUL:
DAILY GLOBE OFFICE.
1884.

VDLA
(St. Paul)

SECOND ANNUAL REPORT

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OFFICERS

OF THE

CITY WATER WORKS.

DECEMBER 1, 1883.

BOARD OF WATER COMMISSIONERS:

C. H. BOARDMAN, President,

C. W. GRIGGS,

C. D. GILFILLAN,

P. H. KELLY,

C. D. O'BRIEN, Mayor, member ex-officio,

JOHN CAULFIELD, Secretary,

JOHN B. OVERTON, Superintendent,

L. W. RUNDLETT, Engineer.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,

St. Paul, December 1, 1883.

To the Honorable Common Council of the City of St Paul:

GENTLEMEN:—In compliance with the provisions of section 24, chapter 188, of the special laws of the State of Minnesota, approved February 10, 1881, we herewith submit the second annual report of the Board of Water Commissioners for the year ending November 30, 1883, together with the reports of the Secretary, Superintendent and Engineer, giving a detailed account of the finances and the general condition of the works and progress made for additional supply.

The total receipts from all sources for the year were $354,506.34 and total disbursements were $336,959.86, leaving a balance on hand of $17,546 48.

The secretary's report shows a detailed account of the sources from which this revenue was derived and also an account of the disbursements.

During the year we have laid 25,927 feet of cast iron mains as follows:

25	feet of	24	inch	pipe,	
1,412	" "	16	"	"	
2,445	" "	12	"	"	
17,551	" "	6	"	"	
4,494	" "	4	"	"	

making a total of 4 miles and 4807 feet; we have now 28 4188-5280 miles of water mains, 236 fire hydrants, 24 street sprinkling hydrants and 272 gates. The superintendent's report shows the location, size and kind of mains, hydrants and gates.

At the time of the purchase of the capital stock, property and franchises of the Saint Paul water company by the city of Saint Paul, there were pending in the District Court of Ramsey County, two actions in which the St. Paul water company was a party.

One wherein Theodore Hamm, Philip Thon, Magaret Shaber and Charles Passavant administrators of the estate of Henry Shaber deceased, were plaintiffs. This action was brought to recover $121,000.00 damages, for lessening the flow of water in Phalen creek. At the time of the purchase of the water company's franchises the city retained and withheld from the purchase money $10,000 00 to indemnify the city against loss in said action. The board of water commissioners subsequently were of the opinion that it would be better to settle said action if the same could be done on reasonable terms and the matter was placed in the hands of S. P. Folsom for that purpose. After considerable negotiations he succeeded in settling the same for $12,000.00—2,000.00 more than the city had retained; a complete release was executed and delivered to the city, not only for past, but for any future claim for damages, and Judgment by stipulation was entered in favor of the city. The settlement of this action was first approved by the attorneys for the defendant and then by the Board of Water Commisioners.

The second action was one brought by the Saint Paul water company as plaintiffs against Oliver Biron defendant for trespass upon the right of way of the water company, and this action was ably defended for two years by the attorneys of the defendant and was finally settled by Mr. Folsom, by securing all that was claimed by the company without any expense to the city.

As will be seen from the accompanying report of the engineer, work upon the new supply is progressing rapidly and it is expected to have the work completed by December 1 1884.

Respectfully submitted,

C. H. BOARDMAN,
P. H. KELLY,
C. W. GRIGGS,
C. D. O'BRIEN,
Commissioners.

Annual Report of the Board of Water Commissioners.

SECRETARY'S REPORT.

OFFICE OF THE ST. PAUL WATER WORKS,
St. Paul, December 1 1883.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—In compliance with the provisons of section 24, chapter 188 of the special laws of the State of Minnesota, approved February 10, 1881, entitled "An act to authorize the City of Saint Paul to purchase the franchises and property of the Saint Paul Water Company, and creating the Board of Water Commissioners," I have the honor to submit to your Honorable Board my second annual report with accompanying tables showing in detail, under appropriate heads, the financial operation of the Water Department for the year ending November 30, 1883, the total receipts from all sources and disbursements made during the same time, new consumers added, balances uncollected, abstract of monthly receipts and disbursements, trial balance, cash on hand and on deposit with the city treasurer and the estimated revenue for year ending November 30 1884.

The total receipts from all sources for the year including balance on hand December 1 1882 were $354,506.34
and total disbursements 336,959.86
Leaving a balance of $17,546.48

As will be seen from accompanying statements, repair account is charged with $1,840.74 caused by relaying mains and hydrants caused by change of grades of streets and widening of sidewalks and damages caused to the works by city contractors; and same account is credited with $833.73 of receipts derived as follows:

From city of St. Paul on account of expense changing hydrant Seventh and Robert, caused by change of sidewalk	$24.18
From city of St. Paul on account of expense changing hydrants on W. Seventh st. caused by change of sidewalk	261.85
From city of St. Paul on account of expense repairing main Eigth and Robert caused by the city contractor	38.62
From city of St. Paul on account of expense changing hydrants on Wabashaw St. caused by change of sidewalks	169.62
From city of St. Paul on account of expense raising Fourteenth St, Main caused by change of street grade	200.00
From Narne Bros. & Co. on account of expense repairing hydrant Ninth and Franklin caused by excavating for sewer	10.88
From F. S. Blodgett on account of expense repairing mains on St. Paul st. caused by excavating for sewer	120.58
From sale of rock	8.00
Total	$ 33.73

There has been $61,003.97 expended on account of extending the works in the city and $5,886.71 collected and credited to this account from the following sources, viz:

From St. Paul Foundry & Manufacturing Co., sale of old iron	$198.22
" " " Gas Co., fittings for fire hydrant in Gas Co. yard.....	18.96
" city of St. Paul, work on Westminster st, main	43.10
" " " " " expense of relaying Lafayette Ave. main, this work was done in 1882,....	4,677.97
From H. D. Gates....	10.00
" H. P. Rugg & Co	13.68
" Bald Eagle Road Commissioners through J. F. Hoyt Esq. material sold	32.55
" V. D. Simar & Co., for 16 in. cast iron pipe sold, authorized by the Board...	212.32
" City Pay Rolls, money retained and unclaimed on Pay Rolls from Aug. 10th, 1882 to date....	24.91
From 1,163 loads of rock sold @ 50 cents per load....	581.50
" 218 loads of rock sold @ 75 cents per load	163.50
Total	5,886.71

This rock was taken from streets where mains were laid. No rock has been sold since July as all surplus rock is now used for the new conduit.

The payments made during the year on construction account (new supply) amount to $100,021.19 of which 6,722.53 was on account of office building and furniture and $18,938.80 for land purchased for right of way, pumping station for Dayton's Bluff, settlement of the mill suits, attorney's fees, abtracts and recording deeds and contracts and the balance for labor, tools, material, freight and engineering expenses. The largest items for material paid for are for 1,843,800 brick and 4,957 bbls. of cement. This account is credited with $403.15, $200.00 of which was received from sale of land at Vaidnais Lake and $203.15 from money remaining uncalled for on Pay Rolls to November 1, 1883.

$150,000 was received from city of St. Paul in October.

The bonded debt of the city on account of the water works is $660,000, an increase of $150,000 over last year.

$160,000 are eight per cent. water Co.'s bonds, assumed by the city and due January 1, 1889, $350,000 are four per cent. city bonds payable in 30 years from June 1, 1882 and $150,000 are city five per cent. bonds payable in 30 years from August 1, 1883. The total annual interest on the whole amounting to $34,300, which is paid from the receipts of the water works. I estimate the total water receipts, including miscellaneous receipts, for year ending November 30 1884 at $80,000.

There has been 301 applications made for service pipes the past year, an increase of 22 over last year. The total number of applications to date is 2,431, an increase of 419 since the city purchased the works.

There are 135 consumers supplied through meters, including the Windsor Hotel which has a self registering index on their elevator.

Several new meters have recently been purchased and will be set the coming month.

Since the adoption of the new rules and regulations governing plumbers and consumers, 460 permits have been granted to plumbers, the first one having been issued on April 17, 1883.

A plumber must now get a written permit from this office for each seperate job of plumbing work which he may wish to do, and report the same on blanks prepared for the purpose, within two days after the work is completed; he not only reports new work done, but must also report all water fixtures in the building. The report is then turned over to the inspector, who examines the premises thoroughly and if satisfactory he signs the report and returns it to the office where it is filed. If work is not properly done, the plumber is notified that his work has not been accepted, and must attend to it at once.

I have known instances where premises have been inspected six and seven times before the work was accepted. This is a source of great annoyance, both to the occupant and this department, as the water will not be turned on until the report is returned to this office signed by the inspector. And instances have occured where tenants have had to remain without water several days, owing to the delay of the plumber to properly complete his work.

To remedy this, I would recommend that a penalty be imposed upon a plumber in every case where he reports work as completed and in accordance with the rules, and upon inspection it is found defective.

The inspection service is a very important branch of the work of this department as the revenue of the works in a great measure depend upon this work being faithfully and honestly performed.

It is the intention this winter to thoroughly inspect all buildings where water is furnished with a view of proving the accuracy of the present charges and also to stop the wasting of water, which must be done in order to furnish water to consumers living on high elevations.

In conclusion I desire to thank the members of the Board for the uniform courtesy shown me.

Respectfully submitted,

JOHN CAULFIELD, Secretary.

RECEIPTS AND DISBURSEMENTS FROM DEC. 1, 1882, TO DEC. 1, 1883.

Dec. 1, 1882, To Balance		$ 1,604.14	
General Water Receipts—			
Semi-annual	$43,544.40		
Metered	22,854.92		
		66,399.32	
Miscellaneous Water Receipts—			
Builders	1,436.00		
Water Carts	625.72		
Flushing Sewers, Streets, &c.	947.10		
Filling Cisterns	2,518.01		
Sprinkling Streets	5,646.15		
		10,472.98	
Connections, putting in service pipes		7,876.31	
Shutting off and turning on water		30.00	
Repair		833.73	
Extension		5,886.71	
Bills Payable		111,000.00	
Construction account (new supply)		403.15	
Bonds Sold		150,000.00	
			$354,506.34

DISBURSEMENTS.

General Maintenance Account—			
Salaries		$ 3,787.00	
Stationery and Printing		558.90	
Miscellaneous		349.65	
Labor		1,774.93	
Material		56.39	
Stable feed		192.88	
Repairs		134.55	
			$ 6,854.30
Connection Account (service pipe)—			
Labor		5,581.76	
Lead Pipe		2,432.73	
Brass Goods and Stop Boxes		1,429.23	
Tools and Miscellaneous		447.61	
			9,891.33
Repair Account—			
Hydrants { Labor	$ 566.81		
Hydrants { Material	16.20		
		583.01	
Valves { Labor	9.00		
Valves { Material	21.99		
		30.99	
Mains { Labor	1,185.13		
Mains { Material	41.61		
		1,226.74	1,840.74
Meter Account—			
Labor		46.50	
Meters and Freight		930.44	
			976.94
Extension Account—			
Pipe and Special Castings		27,867.66	
Labor		20,687.84	
Tools and Repairs of same		1,047.07	
Advertising		15.90	
Fire Hydrants		4,420 00	
Valves		3,624.95	
Lead and Hemp Packing		1,325.27	
Lumber and Material		363.01	
Miscellaneous		1,652.27	
			61,003.97
Construction Account (new supply)—			
Labor		36,923.79	
Tools and Repairs of same		2,230 91	
Material		23,550.20	
Freight		3,418.74	
Engineering and right of way		25,647.53	
Miscellaneous and Building Account		8,250.02	
			100,021.19
Interest Account			28,371.39
Bills Payable			128,000.00
Total			336,959.86
Balance			17,546.48
Geo. Reis, City Treasurer		13,602.53	
Cash on hand		3,943.95	

TRIAL BALANCE, DECEMBER 1, 1883,

St. Paul Water Works	$510,000,000	
Bond Account		$660,000.00
General Water Receipts		71,368.20
Miscellaneous Water Receipts		13,041.60
Connection Account	2,097.26	
Extension Account (City extensions)	67,324 96	
General Maintenance	8,556.03	
Repair Account	1,065.60	
Meter	1,288.49	
Construction Account (new supply)	101,184.84	
Interest	35,380.14	
Geo. Reis, City Treasurer	13,602.53	
Shutting Off and Turning on Water		
Cash on Hand	3,943.95	34.00
	$ 744,443.80	$ 744,443.80

Statement showing amount paid the City Treasurer and Warrants drawn against the same from Dec. 1, 1882, to Dec. 1, 1883.

1882.			
Dec. 1	Balance in Treasury as per last report		$ 162.39
Dec. 1	Cash	$ 1,500.00	
Dec. 7	Cash	1,000.00	
			2,500.00
1883.			
Jan. 4	Cash	7,000.00	
Jan. 10	Cash	10,000.00	
			17,000.00
Feby. 6	Cash	4,000.00	
Feby. 14	Cash	7,000.00	
			11,000.00
March 2	Cash	1,000.00	
March 6	Cash	[illegible]00.00	
			2,500.00
April 12	Cash	3,000.00	
April 19	Cash	1,200.00	
April 21	Cash	3,800.00	
			8,000.00
May 7	Cash	2,500.00	
May 12	Cash	13,000.00	
May 24	Cash	7,000.00	
May 31	Cash	1,200.00	
			23,700.00
June 4	Cash	1,500.00	
June 7	Cash	10,000.00	
			11,500.00
July 3	Cash	6,500.00	
July 7	Cash	10,000.00	
July 10	Cash	15,000.00	
July 21	Cash	10,500.00	
July 31	Cash	2,000.00	
			44,000.00
Aug. 7	Cash	14,500.00	
Aug. 22	Cash	10,000.00	
Aug. 24	Cash	200.00	
			24,700.00
Sept. 1	Cash	3,000.00	
Sept. 12	Cash	1,500.00	
Sept. 13	Cash	30,000.00	
Sept. 25	Cash	12,000.00	
Sept. 27	Cash	1,000.00	
			47,500.00
Oct. 20	Cash	150,000.00	
Oct. 29	Cash	5,000.00	
			155,000.00
Nov. 26	Cash		3,000.00
	Total		$ 350,562.35

WARRANTS.

1882.							
Dec.	1	Warrant	No.	94		$1,298 62	
Dec.	7	do	do	95	To 119 Inclusive	744 80	2
1883.							
Jan.	4	do	do	120	do 121 Inclusive	7,397 89	
Jan.	12	do	do	1 2	do 149 Inclusive	8,661 25	16
Feb.	2	do	do	150	do	1,114 92	
Feb.	7	do	do	151	do 175 Inclusive	830 99	
Feb.	14	do	do	176	do 178 Inclusive	10,836 83	12
March	2	do	do	179		1,182 38	
March	6	do	do	180	do 205 Inclusive	874 36	2
April	14	do	do	206	do 240 Inclusive	4,350 05	
April	17	do	do	241		580 44	4
May	2	do	do	242		1,677 48	
May	5	do	do	243	do 280 Inclusive	6,454 37	
May	12	do	do	283		2,125 00	
May	15	do	do	281		7,140 00	
May	24	do	do	282		7,008 75	24
June	2	do	do	284		3,079 44	
June	4	do	do	285		557 87	
June	7	do	do	286	do 327 Inclusive	7,199 82	
June	16	do	do	328		3,642 00	
June	26	do	do	329	do 330 Inclusive	174 00	14
July	3	do	do	331		6,440 00	
July	7	do	do	332	do 333 Inclusive	4,489 43	
July	12	do	do	334	do 391 Inclusive	15,445 32	
July	21	do	do	392		10,100 00	36
Aug.	1	do	do	393	do 394 Inclusive	4,887 01	
Aug.	3	do	do	395	do 447 Inclusive	7,435 16	
Aug.	7	do	do	448		13,260 00	
Aug.	23	do	do	449		7,140 00	
Aug.	24	do	do	450	do 452 Inclusive	3,165 00	35
Sept.	1	do	do	453		4,368 49	
Sept.	12	do	do	454		3,688 62	
Sept.	13	do	do	455	do 510 Inclusive	23,397 67	
Sept.	25	do	do	511	do 512 Inclusive	14,278 45	45
Oct.	1	do	do	513	do 515 Inclusive	68,607 21	
Oct.	6	do	do	516	do 573 Inclusive	16,218 63	
Oct.	10	do	do	574		7,730 99	
Oct.	27	do	do	575		784 90	93
Nov.	1	do	do	576	& 577 Inclusive	5,077 52	
Nov.	5	do	do	578	To 644 Inclusive	33,607 86	
Nov.	9	do	do	645		10,536 74	49
							336
Balance in City Treasury							13

The following statement shows the amount due the Water Board on December 1st

City of St. Paul, Expense Changing Hydrant, Third and Rosabel	$ 14 75
City of St. Paul, Expense Changing Hydrant Third and Wabasha	28 90
City of St. Paul, Repairing Main, Lafayette Ave. and caused by Sewer Contractor	12 56
City of St. Paul, Repairing Gate Box E. 7th, caused by Pavement Contractor	5 25
City of St. Paul, Repairing Main on Westminster St. caused by Sewer Contractor	1 75
City of St. Paul, For Water furnished for Setting Earth under Pavement, 7th and Rosabel	5 57
City of St. Paul, Water for Fire Purposes for 6 months to December 1st, 1883	6,754 50
Connection Bills, Amount Due for putting in Services	
Builders, about	
Total	

Date	Month.	Bonds.	Extension.	Bills Payable.	Total Receipts
1882	December.....	.....	$84 20	.....	$4,814
1883	January.....	.....	181 60	.....	16,377
1883	February.....	.....	72 96	$7,0 0 0	9,561
1883	March.....	.....	184 25	.....	2,892
1883	April.....	.....	55 25	.....	6,522
1883	May.....	.....	56 50	20,0 0 0 00	23.378
1883	June.....	.....	108 10	10,000 00	16,210
1883	July.....	.....	4,687 97	10,000 00	39,708
1883	August.....	.....	70 52	22,000 00	27,428
1883	September.....	.....	13 68	42,000 00	46,419
1883	October.....	$150,000	244 87	.....	154,517
1883	November.....	.....	126 91	.....	5,070
	Total.....	$150,000	5,886 71	$111,000 00	$352,902

WARRANTS.

1882.							
Dec.	1	Warrant	No.	94		$1,293 62	
Dec.	7	do	do	95	To 119 Inclusive	744 80	2,03
1883.							
Jan.	4	do	do	120	do 121 Inclusive	7,397 39	
Jan.	12	do	do	1 2	do 149 Inclusive	8,661 25	16,04
Feb.	2	do	do	150	do	1,114 92	
Feb.	7	do	do	151	do 175 Inclusive	830 99	
Feb.	14	do	do	176	do 178 Inclusive	10,836 83	12,27
March	2	do	do	179		1,182 38	
March	6	do	do	180	do 205 Inclusive	824 36	2,00
April	14	do	do	206	do 240 Inclusive	4,350 05	
April	17	do	do	241		580 44	4,93
May	2	do	do	242		1,677 48	
May	5	do	do	243	do 280 Inclusive	6,454 37	
May	12	do	do	283		2,125 00	
May	15	do	do	281		7,140 00	
May	24	do	do	282		7,008 75	24,40
June	2	do	do	284		3,079 44	
June	4	do	do	285		557 87	
June	7	do	do	286	do 327 Inclusive	7,199 82	
June	16	do	do	328		3,642 00	
June	26	do	do	329	do 330 Inclusive	174 00	14,65
July	3	do	do	331		6,440 00	
July	7	do	do	332	do 333 Inclusive	4,439 43	
July	12	do	do	334	do 391 Inclusive	15,445 32	
July	21	do	do	392		10,100 00	36,42
Aug.	1	do	do	393	do 394 Inclusive	4,887 01	
Aug.	3	do	do	395	do 447 Inclusive	7,435 16	
Aug.	7	do	do	448		13,260 00	
Aug.	22	do	do	449		7,140 00	
Aug.	24	do	do	450	do 452 Inclusive	3,165 00	35,88
Sept.	1	do	do	453		4,368 49	
Sept.	12	do	do	454		3,688 62	
Sept.	13	do	do	455	do 510 Inclusive	23,397 67	
Sept.	25	do	do	511	do 512 Inclusive	14,278 45	45,72
Oct.	1	do	do	513	do 515 Inclusive	68,607 21	
Oct.	6	do	do	516	do 573 Inclusive	16,218 63	
Oct.	10	do	do	574		7,730 99	
Oct.	27	do	do	575		784 90	93,34
Nov.	1	do	do	576	& 577 Inclusive	5,077 52	
Nov.	5	do	do	578	To 644 Inclusive	33,607 86	
Nov.	9	do	do	645		10,536 74	49,22
							336,95
Balance in City Treasury							13,60

The following statement shows the amount due the Water Board on December 1st, 18

City of St. Paul, Expense Changing Hydrant, Third and Rosabel	$ 14 75	
City of St. Paul, Expense Changing Hydrant Third and Wabasha	28 90	
City of St. Paul, Repairing Main, Lafayette Ave and caused by Sewer Contractor	12 56	
City of St. Paul, Repairing Gate Box E. 7th. caused by Pavement Contractor	5 25	
City of St. Paul, Repairing Main on Westminster St. caused by Sewer Contractor	1 75	
City of St. Paul, For Water furnished for Setting Earth under Pavement, 7th and Rosabel	5 57	
City of St. Paul, Water for Fire Purposes for 6 months to December 1st, 1883	6,754 50	
		6,82
Connection Bills, Amount Due for putting in Services		67
Builders, about		20
Total		7,69

Date	Month.	Bonds.	Extension.	Bills Payable.	Total Receipt
1882	December.....	.....	$84 20	.....	$4,814
1883	January.....	.....	181 50	.....	16,377
1883	February.....	.....	72 96	$7,0 0 00	9,561
1883	March.....	.....	184 25	.....	2,892
1883	April.....	.....	55 25	.....	6,522
1883	May.....	.....	56 50	20,000 00	23.378
1883	June.....	.....	108 10	10,000 00	16,210
1883	July.....	.....	4,687 97	10,000 00	39,708
1883	August.....	.....	70 52	22,000 00	27,428
1883	September.....	.....	13 68	42,000 00	46,419
1883	October.....	$150,000	244 87	.....	154,517
1883	November.....	.....	126 91	.....	5,070
	Total.....	$150,000	5,886 71	$111,000 00	$352,902

WARRANTS.

1882.							
Dec.	1	Warrant	No.	94		$1,293 62	
Dec.	7	do	do	95	To 119 Inclusive	744 80	2,038 42
1883.							
Jan.	4	do	do	120	do 121 Inclusive	7,397 39	
Jan.	12	do	do	1 2	do 149 Inclusive	8,661 25	16,048 64
Feb.	2	do	do	150	do	1,114 92	
Feb.	7	do	do	151	do 175 Inclusive	820 99	

[illegible]		6,823 46
Connection Bills, Amount Due for putting in Services		671 20
Builders, about		200 00
Total		7,694 66

ABSTRACT OF WATER RECEIPTS FOR YEAR ENDING NOVEMBER 30, 1883.

Date	Month.	Bonds.	Construction new supply.	General Water Rec'pts.		Miscellaneous Water receipts.					Connections.	Shutting off and Turning on water	Repair.	Extension.	Bills Payable.	Total Receipts
				Semi-annual	Meter.	Builders.	Water Carts.	Miscel.	Filling Cisterns.	Street Spr.						
1882	December.....	.....	.....	$2,121 51	$1,498 95	$95 45	$49 16	$12 50	$309 35	$73 05	$585 60	....	....	$84 20	.....	$4,814
1883	January.....	.....	.....	13,473 0[illegible]	1,806 6[illegible]	86 4[illegible]	48 42	56 50	526 25	26 85	164 75	8 00	$35 06	181 50	.....	16,377
1883	February.....	.....	.....	181 25	1,722 40	.....	50 69	.....	443 50	17 58	73 07	...	.....	72 96	$7,0[illegible]0 00	9,561
1883	March.....	.....	.....	140 6[illegible]	1,669 19	170 00	71 55	15 15	426 08	.....	214 90	1 00	.....	184 25	.....	2,892
1883	April.....	.....	.....	3,6[illegible]4 85	2,109 95	53 40	68 05	14 50	256 40	.....	311 50	4 00	.....	55 25	.....	6,522
1883	May.....	.....	.....	142 65	1,735 64	84 80	69 80	22 00	59 08	353 58	844 50	2 00	8 00	56 50	20,000 00	23,378
1883	June.....	.....	.....	2,165 55	1,858 98	310 35	55 25	25 00	11 92	683 33	691 08	....	300 47	108 10	10,000 00	16,210
1883	July.....	.....	.....	20,510 59	2,354 87	146 00	22 25	12 00	.....	917 62	878 05	10 00	169 62	4,687 97	10,000 00	39,708
1883	August.....	.....	$[illegible]00 00	554 13	2,225 30	97 80	95 55	49 40	43 87	1,061 98	9[illegible]9 05	....	120 58	70 52	22,000 00	27,428
1883	September....	.....	.....	230 65	1,888 05	99 00	50 00	8 75	83 4[illegible]	1,0[illegible]9 63	1,036 0[illegible]	....	.....	13 68	42,000 00	46,419
1883	October.....	$150,000 00	.. ..	216 40	1,976 60	68 80	50 00	8 00	79 08	958 10	915 50	....	.....	244 87	.....	154,517
1883	November.....	.....	903 15	153 10	2,008 34	224 50	.....	23 3[illegible]	279 00	544 93	1,3[illegible]2 26	5 00	200 00	126 91	.....	5,070
	Total.....	$150,000 00	$[illegible]03 15	$43,544 40	$22,954 92	$1,486 00	$625 72	$247 10	$2,518 01	$5,646 15	$7,876 31	$30 00	$833 7[illegible]	$5,886 71	$111,000 00	$352,902

WATER BONDS.

Bonds outstanding December 1st, 1883, assumed and issued for the purchase, extension and improvement of the Water Works:

Water Co.'s Bonds (assumed by City), interest 8 per cent., due January 1st, 1889, interest due January 10th and July 10th	$160,000 00
City Bonds, dated June 1st, 1882, interest 4 per cent., due in 30 years, interest due December 1st and June 1st	350,000 00
City Bonds, dated August 1st, 1883, interest due February 1st and August 1st, at rate 5 per cent., due 30 years	150,000 00
Total	$660,000 00

List of vouchers paid from December 1, 1882, to December 1, 1883.

DECEMBER, 1882.

Voucher No.	To whom paid.	Claim.	Amount.	
94	John Caulfield	City pay roll for Nov. 1882	$1,298 62	
95	John Caulfield	Salary for November, 1882	125 00	
96	John B. Overton	Salary for November, 1882	125 00	
97	John Caulfield	Bills paid as per voucher	12 52	
98	J. G. Duggan & Bro	Blacksmithing	10 00	
99	Elmer & Newell	Engineering done in November, 1882	59 50	
100	Geo, J. Mitsch & Co	Gasoline for plumber	4 38	
101	Sanders & Mathews	Eight barrels Louisville cement	12 80	
102	J. De Graw & Sons	Lumber	1 08	
103	De Coster & Clark	Desk and chairs	30 00	
104	H. P. Rugg	Pipe and valve	4 28	
105	P. H. Kelly & Co	Tea lead, powder and fuse	28 78	
106	W. F. Bailey	Brass goods	30 80	
107	Griggs & Foster	Wood	14 50	
108	Robinson & Cary	Pig lead	16 42	
109	Hanley & Ryan	Horse shoeing	3 50	
110	T. S. White Stationery Co.	Stationery	3 60	
111	Wilson & Rogers	Lead pipe and gas fixtures	54 06	
112	Farwell, Ozmun & Jackson	Pick handles and desk knobs	3 21	
113	Prendergast Bros	Lead pipe, oil cans, etc	145 64	
114	Geo. J. Exley	Drayage	9 82	
115	Geo. Mitsch	Blacksmithing	16 17	
116	Jacob Hammer	Harness repairing and leather packing.	10 35	
117	Menk Bros	Oats, corn and bran	8 16	
118	Breuer & Rhodes	One steel crowbar	1 88	
119	P. J. Giesen	Forty-five pigeon hole boxes	13 50	
				$2,088 42

JANUARY, 1883.

120	Geo. Reis, City Treasurer	To pay Jan. int. on Water Co.'s bonds.	$6,437 25	
121	John Caulfield	City pay roll for December, 1882	950 14	
122	John B. Overton	Salary for December, 1882	125 00	
123	John Caulfield	Salary for December 1882	125 00	
124	John Caulfield	Money advanced to pay freights, etc	30 53	
125	First National bank	Note and interest	7,082 44	
126	B. D. Wood & Co	Hydrants	233 72	
127	Shickle, Harrison & Co	One car water pipe	582 20	
128	Menk Bros	Oats	10 04	
129	Sanders & Matthews	Four barrels Louisville cement	6 40	
130	Kaese, Mahle & Sutmar	Blacksmithing	3 50	
131	W. A. Judd	Livery	6 00	
132	A. E. Melgren	Two Inspector's badges	3 00	
133	Griggs & Foster	Wood	12 00	
134	Pollock, Donaldson & Ogden	Lanterns and chimneys	4 50	
135	St. Paul Gas Co	Gas pipes and gas for December, 1882	12 05	
136	Pioneer Press	Printing and advertising	20 00	
137	J. G Duggan & Bro	Blacksmithing	50 30	
138	Thomas Holmden,,	Work on New Supply	32 00	
139	Eric Nystrom	Blasting timbers and labor	23 40	
140	Farwell, Ozmun & Jackson,	Nails, picks, etc	10 90	
141	P H Kelly & Co	Powder, fuse, oil, etc	54 45	
142	J. DeGraw & Sons	Lumber	2 42	
143	B. Presley & Co	Powder	3 15	
144	Elmer & Newell,	Engineering for December, 1882	125 15	

145	W. F. Bailey	Brass goods	10 06	
146	Jos. Bazille	Wood	24 75	
147	Daily Globe	Printing and stationery	20 85	
148	Thomas Holmden	Work on new supply	46 00	
149	H. P. Rugg	Four feet 1½ inch hose	1 44	
				$16,048 64

FEBRUARY, 1883.

150	John Caulfield	City pay roll for January, 1883	1,114 82	
151	John B. Overton	Salary for January, 1883	125 00	
152	John Caulfield	Salary for January, 1883	125 00	
153	C. D. Gilfillan	Salary as Water Com'r for Nov Dec. Jan	25 00	
154	Edmund Rice	Salary as Water Com'r for Nov Dec. Jan	25 00	
155	C. W. Griggs	Salary as Water Com'r for Nov Dec. Jan	25 00	
156	P. H. Kelly	Salary as Water Com'r for Nov. Dec. Jan	25 00	
157	C. H. Boardman	Salary as Water Com'r for Nov. Dec. Jan	25 00	
158	H. A. Castle	Advertising water rents	2 40	
159	Ranny & Hodgman	One rubber stamp	1 00	
160	H. P. Rugg	Rubber hose	4 50	
161	W. A. Judd	Livery	6 00	
162	Hanley & Ryan	Horseshoeing	3 50	
163	T. S. White Stationery Co	Stationery	4 81	
164	Pioneer Press	Printing and advertising	29 85	
165	Daily Globe	Advertising	4 80	
166	Robinson & Cary	Pig lead	28 67	
167	Bazille & Patridge	Glass and painting	2 35	
168	P. H. Kelly Mercantile Co	Powder and fuse	21 65	
169	Geo. J. Exley	Drayage on iron pipe	10 00	
170	W. R. Burkhard	Powder	12 60	
171	Farwell, Ozmun & Jackson	Picks and shovels	147 75	
172	Elmer & Newell	Engineering in January	128 75	
173	Sanders & Mathews	Six barrels Cement	9 60	
174	Prendergast Bros	Pig tin	27 00	
175	Wilson & Rogers	Iron fittings	1 26	
176	A. Wilcox & Co	Note, $10,000.00; interest $273,33	10,278 33	
177	Jos. Bazille	Five cords dry oak wood	27 50	
178	J. G. Duggan & Co	Blacksmithing	36 00	
				$12,272 74

MARCH, 1883.

179	John Caulfield	City Pay Roll for February, 1883	$1,182 38	
180	John Caulfield	Salary for February, 1883	125 00	
181	John B. Overton	Salary for February, 1883	125 00	
182	Die Volkszeitung	Advertising	3 40	
183	John Dowlan	One-half cord sawed dry maple	4 00	
184	Menk Bros	Corn, oats, bran and hay	4 75	
185	Griggs & Foster	One ton coal	9 50	
186	Edward McNamee	Oats and hay	5 57	
187	Richard Price	Doctoring horse	13 80	
188	St. Paul Gas company	Gas for January, 1883	2 30	
189	J. G. Duggan & Bro	Blacksmithing	28 40	
190	John Caulfield	Money adv'n'd to pay bills as per v'ch'r	34 69	
191	National Meter company	Six Crown meters	189 50	
192	Union Water Meter Co	Repairing six Union meters	40 12	
193	Wilson & Rogers	Galvanized iron pipe	48 15	
194	Sanders & Mathews	Five barrels Louisville cement	8 00	
195	H. P. Rugg & Co	Pipe and fittings	44	
196	P. H. Kelley Mercantile Co	Powder, fuse and oil	55 81	
197	Frank Morand	Ladle and two furnaces	18 00	
198	Peter Kerst	Blacksmithing	20 95	
199	George Mitsch	Blacksmithing	27 55	
200	Farwell Ozmun & Jackson	One chisel and one doz. sledge handles	2 50	
201	Pollock, Donaldson & Ogden	Two dozen lantern globes	2 00	
202	Breuer & Rhodes	1-18¼ pounds steel sledge	3 65	
203	J. DeGraw & Sons	Lumber	7 59	
204	L. W. Rundlett	Salary for February, 1883	69 44	
205	Elmer & Newell	Engineering for February, 1883	24 25	
				$2,006 74

APRIL, 1883.

206	John Caulfield	City pay roll for March, 1883	$1,474 00	
207	John B. Overton	Salary for March, 1883	125 00	
208	John Caulfield	Salary for March, 1883	125 00	
209	L. W. Rundlett	Salary for March, 1883	208 33	

210	L. W. Rundlett	Horse and buggy from Feb. 20, '88, to April 1, 1883	44 44	
211	Pioneer Pre s company	Printing	199 75	
212	H. P. Rugg & Co	Pig lead	245 78	
213	P. H. Kelly Mercantile Co	Powder, fuse and andles	66 55	
214	Pollock, Donaldson & Ogden	Two tubular lanterns	2 00	
215	Peter Kerst	Blacksmithing	62 10	
216	J. G. Duggan & Bro	One buggy for Sup't and blacksmithing	122 20	
217	J. F. Alexander	Horse for Superintendent	200 00	
218	Richard Price	Examining horse	2 50	
219	Jacob Hammer	Harness and repairing	35 65	
220	Sanders & Mathews	Eight barrels cement	12 80	
221	Griggs & Foster	Coal and wood	26 00	
222	Geo. J. Mitsch & Co	Oil, lampblack, acid, etc	1 40	
223	Menk Bros	Oats	8 08	
224	Daily Globe	Subscription from Aug. 10, 1882 to March 10, 1883	6 70	
225	Marr & Richards	Wood cuts for plumbers' rules	6 00	
226	T. S. White Stationery Co	Stationery for March, 1883	11 95	
227	Geo. J. Exley	Drayage	11 10	
228	Moeller, Pederson & Co.	Turning wood for rammers	2 10	
229	J. De Graw & Sons	Lumber	16 99	
230	Hanley & Ryan	Horse shoeing	4 75	
231	William A. Judd	Livery	3 00	
232	Farwell, Ozmun & Jackson	Tools, etc.	3 91	
233	St. Paul Gas Co	Gas for March, 1883	1 00	
234	Robinson & Cary	1 coil tarred marlin	1 20	
235	Bingham & Morgan	Stop cock and valve boxes	380 90	
236	Wilson & Rogers	Lead pipe and fittings	38 25	
237	Elmer & Newell	Engineering for March, 1883	12 75	
238	John Caulfield	Postage stamps, sawing wood, etc., as per voucher	10 15	
239	L. W. Rundlett	Expenses East, examining water system as per voucher	258 09	
240	Dennis Long & Co	Cast iron pipe and specials	619 72	
241	Dennis Long & Co	Cast iron pipe and specials	580 54	
				$4,980 59

MAY, 1883.

242	John Caulfield	City pay roll for April, 1883	$1,677 48	
243	John Caulfield	Salary for April, 1883	125 00	
244	John Caulfield	Cash advanced to pay freight on hydrants, etc	141 18	
245	John B. Overton	Salary for April, 1883	125 00	
246	L. W. Rundlett	Salary for April, 1883	208 33	
247	L. W. Rundlett	Horse and buggy for April, 1883	33 33	
248	C. D. Gilfillan	Salary as Water Commissioner for February, March and April	25 00	
249	C. W. Griggs	Salary as Water Commissioner for February, March and April	25 00	
250	C. H. Boardman	Salary as Water Commissioner for February, March and April	25 00	
251	P. H. Kelly	Salary as Water Commissioner for February, March and April	25 00	
252	Edmund Rice	Salary as Water Commissioner for February, March and April	25 00	
253	Peter Kerst	Blacksmithing	18 60	
254	J. L. Fox & Co	Lead pipe	67 41	
255	Robinson & Cary	Hemp packing	9 79	
256	McCarthy & Donnelly	1 quart ink	1 00	
277	P. H. Kelly Mercantile Co	Powder, fuse and oil	49 56	
258	Pollock, Donaldson & Ogden	½ dozen tubular lanterns, etc	4 80	
259	W. A. Judd	Livery	3 00	
260	K. P. Cullen	Livery	20 00	
261	Menk Bros	Oats	18 61	
262	W. F. Bailey	Brass goods	148 74	
263	Breuer & Rhodes	17 feet ⅝ inch chain	3 88	
264	Sanders & Mathews	4 barrels cement	6 00	
265	J. De Graw & Sons	Lumber	1 92	
266	Griggs & Foster	2 cords slabs	7 00	
267	Moeller, Pederson & Co	Turning 2 poles	1 60	
268	Wilson & Rogers	Lead pipe and fittings	84 22	
269	H. P. Rugg & Co	lead pipe	190 91	

270	Geo. J. Exley	Drayage in April 199,154 pounds, at 65 cents per ton	64 72	
271	T. S. White Stationery Co	Stationery for Engineer	83 74	
272	Fernald & Wheeler	Furniture for Engineer	72 50	
273	St. Paul Foundry & M'f'g Co.	Sleeves and iron covers	43 68	
274	Farwell, Ozmun & Jackson	Axe handles, tape line	3 40	
275	Ranny & Hodgman	Rubber boots	28 25	
276	J. G. Duggan & Bro	Blacksmithing	7 75	
277	John Caulfield	Engineer's pay roll for April, 1883	170 95	
278	Dennis Long & Co	Cast iron water pipe and specials	2,627 18	
279	Boston Machine Co	Valves	578 00	
280	R. D. Wood & Co	30 Mathew's fire hydrants, less freight paid	1,429 37	
281	First National bank	Note ($7,000 00) and interest ($140)	7,140 00	
282	Geo. Reis, City Treasurer	Interest and exchange coupons due June 1, 1883	7,008 75	
283	Taylor & Craig	Estimate No. 1, office building	2,125 00	
				$24,405 60

JUNE, 1883.

284	John Caulfield	City pay roll for May, 1883	$3,079 44	
285	John Caulfield	Pay roll for May 1883. New supply	557 87	
286	John Caulfield	Salary for May, 1883	125 00	
287	John B. Overton	" " "	125 00	
288	L. W. Rundlett	" " "	208 33	
289	L. W. Rundlett	Horse and buggy for May, 1883	33 33	
290	Edmund Rice	Salary as commissioner for May, 1883	8 33	
291	B. Baker & Co	Office Rent	25 00	
292	Slater & Riley	Blacksmithing	3 75	
293	W. F. Bailey	Brass goods	86 61	
294	J. DeGraw & Sons	Lumber	2 33	
295	Geo. J Mitsch & Co	Gasoline and paint	5 45	
296	John Bell	7 barrels Louisville cement	11 20	
297	F. H. Kelly Mercantile Co	Powder and fuse	35 65	
298	Geo. J. Exley	Drayage on iron pipe in May	76 80	
299	Geo. J. Exley	Drayage for engineer in May	16 00	
300	Geo. Mitsch	Blacksmithing	17 50	
301	Peter Kerst	Blacksmithing	29 45	
302	John Dowlan	151 blasting timbers	52 85	
303	Ward, Hill, & McClellan	Stationery	1 20	
304	Robinson & Cary	Hemp packing and valves	43 18	
305	F. G. Draper & Co	Rope for Engineer	95	
306	Fernald & Wheeler	4 chairs for Engineer's office in Little Canada	7 00	
307	P. Boeringer & Sons	Tape lines, etc., for Engineer	23 50	
308	St. Paul Book & Stationery Co	Stationery for Engineer	50 50	
309	Elmer & Newell	Engineering in April, 1883	15 50	
310	Farwell, Ozmun & Jackson	Shovels, Picks, etc	66 95	
311	Menk Bros	Oats	8 40	
312	H. P. Rugg & Co	Pig lead and lead pipe	211 25	
313	Breuer & Rhodes	Sledges, crowbars and nails	24 44	
314	Wilson & Rogers	Pipe	203 79	
315	St. Paul Foundry & M'f'g Co.	Cast iron special castings	52 78	
316	K. P. Cullen	Livery for Engineer	28 00	
317	Prendergrast Bros	Lead pipe	180 95	
318	St. Paul Gas Co	Gas, for May	2 90	
319	W. C. Hubbell	Services in suit against O. Biron	12 00	
320	C. K. Davis	Serv in suit of Hamm, Thon & Shabber	500 00	
321	Bingham & Morgan	Iron stop cock boxes	130 90	
322	Union Water Meter Co	Meters	49 15	
323	National Meter Co	Meters	265 50	
324	Dennis Long & Co	Iron pipe and specials	4,274 90	
325	H. Mueller	Tapping machine	100 00	
326	Pioneer Press	Advertising in regard to use of hose	46 83	
327	John Caulfield	Adv's made to pay freight, feed, etc	27 67	
328	Taylor & Craig	Est No. 2 and final for office building	3,642 00	
329	John Caulfield	Freight paid on hydrants	130 70	
330	L. W. Rundlett	Office rent paid as per voucher	43 30	
				$14,653 13

JULY, 1883.

331	Geo. Reis, City Treas.	To pay July intst on Water Co.'s bonds	$6,440 00
332	John Caulfield	City pay roll for June, 1883	3,892 43
333	John Caulfield	Pay roll for June, 1883, on new supply	547 00
334	L. W. Rundlett	Salary for June, 1883	206 33
335	L. W. Rundlett	Horse and buggy for June, 1883	33 33
336	John B. Overton	Salary for June, 1883	125 00
337	John Caulfield	Salary for June, 1883	125 00
338	P. Roeringer & Sons	Transit and chains for Engineer	196 55
339	E. P. Bassford	Drawing plans for office building	116 00
340	C. K Davis	Services in suit against O. Biron	104 55
341	Jacob Hammer	Repairing harness	3 65
342	Pioneer Press	Printing and advertising	14 25
343	Pioneer Press	Subscription for 6 months to July 1,'83	6 00
344	H. A. Castle	Advertising in regard to use of hose	23 00
345	P. H. Kelly Mercantile Co.	Powder and fuse	63 88
346	Fairbanks, Morse & Co	1 No 10 scales	31 00
347	Ward, Hill & McClelland	Stationery	8 69
348	Griggs & Foster	1 cord slabs	3 50
349	Richard Price	Doctoring horse	6 00
350	W. R. Burkhard	Fuse	2 00
351	F. G. Draper & Co	Letter plate and hooks	1 00
352	Geo. J. Mitsch & Co	Oil and paints for office building	37 61
353	Trick & Co	2 boats for Engineer	31 75
354	Die Volkszeitung	Advertising in regard to use of hose	18 00
355	Robinson & Cary	1 coil gaskett	10 29
356	C. Passavant	Abstracts of lots at Vadnais lake	3 05
357	Ranny & Hodgman	Rubber coat, etc.	5 35
358	Menk Bros	Oats	9 08
359	Auerbach, Finch & Van Slyck	Curtains for office	34 80
360	John Brunton	Two lamps and two sets pins	5 20
361	Drew Bros	Step ladder for Engineer's office	3 50
362	A. Lannoux	Rent of office in Little Canada $5.00 and supplies $5.85	10 85
363	W. A. Judd	Livery for Engineer	20 00
364	H. P. Rugg & Co	Lead and iron pipe	204 33
365	John Caulfield	Money advanced to pay freight, etc., as per voucher	55 95
366	J. G. Duggan & Bro.	Blacksmithing for May and June	17 85
367	Johnston & Mahoney	Plumbing work	8 76
368	Geo. Mitsch	Blacksmithing	31 00
369	J. DeGraw & Sons	Lumber	35 55
370	Breuer & Rhodes	1-18 pound sledge	3 60
371	St. Paul Furniture Co.	Office furniture	285 00
372	Pollock, Donaldson & Ogden	Lanterns	5 95
373	Strong, Hackett & Co	Grain scoop and hay fork handle	95
374	DeCoster & Clark	Desks and chairs for office	65 50
375	St. Paul Gas Co	Gas for June, 1883	3 77
376	Daily Globe	Printing and advertising	78 06
377	St. Paul Book & Stationery Co.	Stationery	10 58
378	St. Paul Globe Printing Co.	Subscription to July 1, 1883	3 65
379	Wilson & Rogers	Lead and iron pipe and fittings	118 17
380	Farwell, Ozmun & Jackson	Shovels, etc.	53 09
381	W. F. Bailey	Brass goods	23 08
382	Geo. J. Exley	Drayage, 516,789 pounds iron pipe at 65c per ton	167 95
383	National Meter & Co	Crown meters	271 00
384	Boston Machine Co	Valves	1,205 30
385	R. D. Wood & Co	25 Mathews fire hydrants less freight paid	1,186 65
386	Bingham & Morgan	Valve and stop boxes	599 94
387	Dennis Long & Co	Cast iron pipe and specials	9,069 43
388	C. N. Bell	Lot 10, Vadnais Lake Villas	200 00
389	Marion Harrison	" 7, " " "	200 00
390	E Corning	" 9, " " "	200 00
391	H. D. Gates	Work at McCarrons Lake	80 00
392	First National Bank	Note $10,000,00 and interest $100,00	10,100 00
			$36,424 75

AUGUST, 1883.

393	John Caulfield	City pay roll for July, 1883	3,927 98
394	John Caulfield	Pay roll for July, 1883, work on new supply	959 08
395	L. W. Rundlett	Salary for July, 1883	208 33
396	L. W. Rundlett	Horse and buggy for July, 1883	33 33
397	John B. Overton	Salary for July, 1883	125 00
398	John Caulfield	" " " "	125 00
399	C. D. Gilfillan	Salary as Water Commissioner for May, June and July	25 00
400	C. W. Griggs	Salary as Water Commissoner for May, June and July	25 00
401	C H Boardman	Salary as Water Commissioner for May, June and July	25 00
402	P H Kelly	Salary as Water Commissioner for May, June and July	25 00
403	C D O'Brien	Salary as Water Commissioner for June and July	16 67
404	R D Ducharme	Cleaning canal between Phalen and Gervais lakes	20 00
405	Pioneer Press	Postal cards and printing	22 95
406	Menk Bros	Oats	15 81
407	Sanders & Mathews	358 barrels Milwaukee cement	322 20
408	Geo L Wilson	bills paid as per voucher	11 95
409	Bazille & Partridge	Painting and marking rod	2 00
410	Geo Mitsch	Blacksmithing for July, 1883	51 16
411	Watson, Perkins & Forrest	Re-paving Seventh street fer water service	40 00
412	St Paul Foundry & Manuf'g Co	Cast iron sleeves	25 86
413	Capital Iron Works	Repairing pump	10 00
414	Peter Kerst	Blacksmithing for July, 1883	26 70
415	Geo J Mitsch & Co	Gasoline, etc	5 85
416	A Lannoux	Office rent for July in Little Canada, $5.00; supplies .75	5 75
417	John Martin & Co	Lumber for new supply	93 79
418	St Paul Book & Station'y Co	Stationery, office, .95; Engineering department, $19.97	20 92
419	Griggs & Foster	13½ tons coal for Vadnais lake	77 63
420	W R Burkhard	Fuse	4 20
421	St Paul & Duluth R R Co	26 cars stone from St. Paul to Vadnais lake	220 40
422	Wilson & Rogers	Lead and iron pipe, sewer pipe, etc	346 54
423	Taylor & Craig	Carpenter work	285 26
424	J De Graw & Sons	Lumber	12 01
425	Brener & Rhodes	Steel sledges	7 50
426	Averill, Russell & Carpenter	Tar paper for Vadnais lake, and letter press for Engineer	17 79
427	Kennedy & Chittenden	5 oil barrels	5 00
428	Rodgers & Davis	Steel hammers, etc	10 70
429	P H Kelly Mercantile Co	Powder, fuse, etc	38 40
430	Duggan Bros	Blacksmithing for July, 1883	7 65
431	Chas Passavant	Abstracts furnished in July, 1883	46 40
432	H P Rugg & Co	Lead pipe and pig lead, etc	328 90
433	John Caulfield	Advanced for right of way deed from Auger	145 00
434	John Caulfield	Advanced for postage, hay, etc., as per voucher	29 75
435	Slater & Riley	Horse shoeing	5 75
436	Farwell, Ozmun & Jackson	Tools	80 39
437	Millston Lumber Co	Lumber for Vadnais lake, new supply.	100 07
438	Robinson & Carey	Pump and supplies	255 17
439	W F Bailey	Brass goods	128 58
440	Catherine E Leslie	Lot 8, Vadnais lake villas	200 00
441	Northwestern Man'f' & Car Co.	2 10-H P engines and belting	993 60
442	Boston Machine Co	Valves	479 40
443	Dennis Long & Co	Cast iron pipe	772 38
444	Morton & Terry	Estimate No. 1, contract for excavation, new supply	1,580 00
445	Geo J Exley	Drayage in July, 1883, 41,625 lbs. at 65c per ton	13 52
446	Joseph Ducharme	Use of horse and buck-board ten days	10 00
447	W. P. Murray	Legal services	50 00

448	First National bank	Note $13,000; interest $260	13,260 00	
449	First National bank	Note $7,0 0; interest $140	7,140 00	
450	John Caulfield	Advanced for right of way deeds, as per voucher	965 00	
451	Swan E. Sanborn & A. P. Monten.	Land in section 6, town 29, range 22	200 00	
452	W. B. Dean	Land in Terry's addition	2,000 00	
				$35,887 1

SEPTEMBER, 1883.

453	John Caulfield	City pay roll for August, 1883	$4,363 49	
454	John Caulfield	Pay roll for August, 1883, new supply.	3,689 62	
455	L. W. Rundlett	Salary for August, 1883	208 33	
456	L. W. Rundlett	Horse and buggy for August, 1883	33 33	
457	John B. Overton	Salary for August, 1883	125 00	
458	John Caulfield	Salary for August, 1883	125 00	
459	George J. Exley	Drayage in August, 1883	7 40	
460	James S. Burris	Two M sewer brick	20 00	
461	K. P. Cullen	Livery for Engineers	3 00	
462	Averill, Russell & Carpenter	Four rolls tarred paper, new supply	4 52	
463	Robinson & Cary	Gasket, tools, etc.	38 08	
464	J. P. Gribben	Lumber	48 70	
465	Henry N. Stone	Pump suction hose	77 85	
466	W. F. Bailey	Brass goods	55 77	
467	Register of Deeds	Recording deeds	12 00	
468	Peter Kerst	Blacksmithing	60 40	
469	Breuer & Rhodes	Nails, steel bars, etc	40 62	
470	Farwell, Ozmun & Jackson	Tools	50 76	
471	Pioneer Press company	Printing, office $23.50; Engineering department $22 14	45 64	
472	St. Paul Book & Stat'ry Co.	Stationery, Engineering department	13 41	
473	Griggs & Foster	Wood	16 00	
474	Menk Bros	Oats	7 84	
475	Pollock, Donaldson & Ogden	Lanterns	2 25	
476	Ranney & Hodgman	One pair rubber boots	5 50	
477	J. DeGraw & Sons	Lumber	20 15	
478	Warne Bros. & Co	Labor, tunneling, etc	44 87	
479	George J. Mitsch & Co	Glass, gasoline, etc	4 12	
480	John Bell	Ten barrels Louisville cement	16 00	
481	P. H. Kelly Mercantile Co	Powder, fuse, etc	70 08	
482	Thomas L. Grace	Right of way in Little Canada	200 00	
483	P. Boeringer	One level	130 00	
484	H. P. Rugg & Co	Pig lead, lead pipe, etc	395 57	
485	Charles Friend	Leather for Engineering department	2 25	
486	Charles Passavant	Abstracts	6 70	
487	A. Lannoux	Rent of office in Little Canada $5, and supplies $12.02	17 02	
488	Morton & Terry	Labor, material and board of foremen.	178 82	
489	Charles C. Smith	One-six-inch cent. pump	75 00	
490	Sanders & Matthews	836 barrels Milwaukee cement	$752 40	
491	John Caulfield	Money advanced for right of way deeds	308 00	
492	John Caulfield	Money advanced to pay small bills as per vouchers	26 64	
493	Boston Machine Co	Valves	339 15	
494	Bingham & Morgan	Iron boxes for valves and stop cocks	368 55	
495	St. Louis & St. P. Packet Co.	1,000 Louisville cement	1,300 00	
496	Northwestern Manuf'g Car Co.	28 m. brick delivered at Vadnais Lake	252 00	
497	Same	28 " " "	252 00	
498	Same	28 " " "	252 00	
499	Same	22 " " "	198 00	
500	Same	14 " " "	126 00	
501	P. F. Egan & Co	Repairing clock	5 00	
502	Capital Iron Works	Repairing pump	9 20	
503	St. Paul & Duluth R R Co	52 cars Stone from St. Paul to Vadnais Lake	431 85	
504	Wilson & Rogers	Sewer pipe, lead pipe, etc	540 79	
505	Duggan Bros.	Blacksmithing	14 30	
506	Wm. Dawson	Right of way deed	375 00	
507	First National Bank	Note $10,000, interest $122.20	10,122 20	
508	Morton & Terry	Estimate No. 2 contract for excavation	5,337 66	
509	E. W. Baxille	68½ yards brick bats $2	137 00	
510	E. W. Baxillle	46½ yards brick bats $2	93 00	
511	F. W. Baxille	Estimate No. 1 brick contract	2,273 45	

512	J. B. & W. H. Sanborn, atty's.	Settlement of suits of Hamm, Thorn & Co., agt. Water Co., past and future damages	12,000 00	
				$45,728 28

OCTOBER, 1883.

513	John Caulfield	City pay roll for September 1883	$4,248 54
514	First National Bank	Notes $52,000, interest $342.67	52,342 67
515	Nat. German American Bank	Note $12,000, interest $16	12,016 00
516	L. W. Rundlett	Salary for September 1883	208 33
517	L. W. Rundlett	Horse and buggy for September 1883	33 33
518	John B. Overton	Salary for September 1883	125 00
519	John Caulfield	Salary for September 1883	125 00
520	Warne Bros. & Co	Shaft hole complete Fourth and Franklin	158 00
521	Peter Kerst	Blacksmithing for September 1883	64 00
522	Jacob Hammer	Repairing harness	8 10
523	Duggan Bros	Blacksmithing for September 1883	28 10
524	Geo. J. Exley	Drayage, 167,770 pounds at 65c per ton	54 50
525	John Dowlan	193 blasting timbers at 35c	67 55
526	Taylor & Craig	Carpenter work	24 27
527	J. P. Gribben	Lumber	23 41
528	C. E. Keller & Co	Lumber	15 00
529	John Martin & Co	Lumber	23 56
530	Breuer & Rhodes	Nails etc	18 04
531	W. F. Bailey	Brass goods	117 69
532	Rodgers & Davis	1 branding iron for marking tools	3 35
533	Averill, Russell & Carpenter	Tarred paper	2 17
534	Mank Bros	Oats, etc	14 25
535	Elmer & Newell	Lettering maps new line	19 00
536	C. C. Miles	Bell and speaking tubes	11 00
537	Farwell, Ozmun & Jackson	Tools	16 10
538	H. P. Rugg	Lead pipes, solder etc	258 37
539	Mark Costello	Carpenter work	9 65
540	Pioneer Press	Printing	4 50
541	A. Lannoux	Office rent in Little Canada $10; supplies, $4.35	14 35
542	Robinson & Carey	Tools and supplies	58 76
543	J. Degraw & Sons	Lumber	8 29
544	St. Paul Book & Stationery Co.	Stationery, office $5.10; Engineer Department $20.30	25 40
545	St. Paul Gas Company	Gas for August & September, 1883	3 95
546	M. F. Kennedy & Bros	Lines	2 30
547	T. M. Metcalf	One wire screen and frame	6 50
548	P. H. Kelly Mercantile Co	Powder and fuse	94 09
549	W. R. Burkhard	Powder and fuse	21 05
550	Sanders & Matthews	612 barrels Milwauke cement @ 90	550 80
551	John Caulfield	Freight etc. paid as per voucher	151 50
552	Dennis Long & Co	Cast iron pipes and specials	2865 73
553	Henry N. Stone	2 pumps and fittings	148 30
554	R. D. Wood & Co	25 Mathew fire hydrants, $1,300; less freight paid $113.35	1,186 65
555	Union Water Meter Company	Repairing meters	86 30
556	Bingham & Morgan	Iron valve boxes	40 50
557	North Western Manf'g & Car Co	336 M. brick delivered at Vadnais Lake at $9	3,024 00
558	St. Louis & St. Paul Packet Co	200 bbls Utica and 300 bbls Louisville cement	630 00
559	Daily Globe	Printing and advertising	12 11
560	Wilson & Rogers	Lead Pipes, pig lead etc	446 70
561	Morton & Terry	Lumber, labor, and board of engineers of pumps	79 55
562	Slater & Riley	Horse shoeing for Aug. and Sept. 1883	6 25
563	O. P. Cullen	Livery for Engineer department	28 00
564	Corlies, Chapman & Drake	1 sash	1 50
565	Lucien Warner	Purchase No. 1, 32 M. brick at Chaska at $8.50	272 00
566	Lucien Warner	Purchase No. 2, 32 M. brick at Chaska at $8.50	272 00
567	Lucien Warner	Purchase No. 3, 32 M. brick at Chaska at $8.50	272 00
568	Lucien Warner	Purchase No. 4, 32 M. brick at Chaska at $8.50	272 00

569	Lucien Warner	Purchase No. 5, 32 M. brick at Chaska at $8.50	272 00
570	Gregg & Griswold	30 M. brick at Chaska, at $8.50	255 00
571	Gregg & Griswold	31½ M. brick at Chaska, at $8.50	267 75
572	Morton & Terry	Estimate No. 3, contract for excavation	3,400 34
573	St. Paul City R. R. Co.	relaying tracks Seventh & Broadway	15 75
574	John Caulfield	Pay Roll for Sept. 1883, work on new supply	7,730 99
575	St. Paul & Duluth R. R. Co.	Freight on stone from St. Paul, and brick from Chaska to Vadnais Lake in September	784 90
			$93

NOVEMBER, 1883

576	Rev. Joseph Goiffon	Right of way deed through sections 5 & 8, T. 29, R. 22	500 00
577	John Caulfield	City pay Roll for October, 1883	4,577 52
578	C. D. Gilfillan	Salary for August, September and October, 1883	25 00
579	P. H. Kelly	Salary for August, September and October, 1883	25 00
580	C. W. Griggs	Salary for August, September and October, 1883	25 00
581	C. H. Boardman	Salary for August, September and October, 1883	25 00
582	C. D. O'Brien	Salary for August, September and October, 1883	25 00
583	Geo. Ries, City Treasurer	Interest on $350,000 bonds and exchange, due December 1, 1883	7,008 75
584	National Meter Co.	1, 1½ inch crown Meter	55 50
585	W. L. Nichols	Horse three and one-half days at $1.50	5 25
586	Jas. J. Dunnigan	1,141 pounds ⅝ inch lead pipe at 7c	79 87
587	D. J. Harrington & Co.	Plumbing, etc	11 60
588	Breuer & Rhodes	Nails, chains, etc	26 19
589	B. Baker	Use of room for board meeting while office was being built	5 00
590	Tusler, De Long & Co	1 Plow	16 00
591	Chas. Passavant	Abstracts	25 65
592	Justus Kahlert	Repairs to pump	2 15
593	A. E. Mellgren	11 steel dies	4 05
594	Sanders & Mathews	5 barrels Louisville cement	7 50
595	Menk Bros	30½ bushels oats at 34c	10 37
596	John Bell	5 barrels Louisville cement	8 00
597	W. R. Burkhard	2,800 feet fuse ½c	14 00
598	Strong, Hackett & Co	2 forks	2 50
599	H. P. Rugg & Co	Drain tile, lead pipe, etc	381 55
600	Wilson & Rogers	Lead and iron pipe and pig lead	245 35
601	St. Paul Gas Co.	Gas bill for October, 1883	1 45
602	P. D. Winchell	Damages to house Ninth and Minnesota streets, by blasting	15 00
603	J. P. Gribben	Lumber	161 54
604	Peter Kerst	Blacksmithing for October, 1883	69 45
605	W. F. Bailey	Brass goods	155 42
606	Chas. Friend	Repairing harness, horse blankets, etc.	26 15
607	Robert Brunton	88 stones numbered for conduit	88 00
608	C. E. Keller & Co	Lumber	13 80
609	Duggan Bros	Blacksmithing	18 10
610	J. De Graw & Sons	Lumber	9 48
611	Robinson & Cary	Supplies	124 18
612	Pollock, Donaldson & Ogden	Lamps	6 00
613	Capital Iron Works	1 valve box	7 50
614	Geo. J. Mitsch & Co	Gasoline, oil, glass, etc	5 83
615	Geo. J. Exley	Drayage for October, 1883, 342,347 pounds at 65c per ton	111 25
616	P. H. Kelly Mercantile Co.	Powder, fuse, etc	67 25
617	Ranny & Hodgman	Rubber boots, etc	74 81
618	Farwell, Ozmun & Jackson	Tools, etc	25 78
619	Pioneer Press Co.	Advertising and printing	84 90
620	St. Paul Book & Stationery Co.	Stationery	7 91
621	Sanders & Mathews	400 barrels Louisville cement, $1.85; 851 barrels of Millwaukee cement 90c	1,305 90
622	St. Louis & St. Paul Packet Co.	400 barrels Louisville cement, $1.35	540 00

	Northwestern M'fg & Car Co	301 M brick at $9, 7 M at $7.50, and 8 cars of brick bats	2,995 50	
	Lucien Warner	198 M brick at $8.50, at Chaska, Minn	1,687 25	
	Gregg & Griswold	104¼ M brick at $8.50, at Chaska, Minn	888 25	
	M M Williams	37½ M brick at $7.50, at Little Falls, Minn	281 25	
	The Dunn Co. Pressed Brick Co	6400 brick at $10, at St. Paul, less $18 freight paid	46 00	
	Dennis Long & Co	Iron pipe and specials	6,379 17	
	K P Callen	Livery	8 50	
	J. W. Nee	Railroad fare to and from Brainerd, inspecting brick	10 80	
	John Martin & Co	Lumber	144 28	
	St. Paul & Duluth Railroad Co	Freight on stone and brick	1,929 75	
	St. Paul & Duluth Railraad Co	Freight on brick from N. P. Junction	48 60	
	William Schwartz	246 M brick at Brainerd, at $7.50 per M	1,845 00	
	Morton & Terry	Labor, lumber, etc	186 50	
	S. Nadeau	Hauling brick, and labor	235 27	
	Vetal Guerin	Blacksmithing	8 60	
	A. Lannoux	Rent of office at Little Canada, $10, and supplies $6.35	16 35	
	E. W. Bazille	42 loads of brick bats at $2	84 00	
	Berkey & Keating	Livery	2 50	
	C. K. Davis	Legal services	750 50	
	Morton & Terry	Estimate No. 4, excavating	4,692 00	
	Ryan & Wallace	Estimate No. 1, plastering conduit	394 36	
	Theodore Parker	Legal services	75 00	
	John Caulfield	Pay Roll new supply for October, 1883	10,536 74	$49,222 12
		Total payments		$336,959 86

SUPERINTENDENT'S REPORT.

St. Paul, Minn., December 1st, 1883.

e Honorable Board of Water Commissioners:

compliance with the provision of section 24, chapter 188, of the Special Laws of the e of Minnesota, approved February 10th, 1881, entitled "An act to authorize the City of 'aul to purchase the franchise and property of The St. Paul Water Company, and cre- the Board of Water Commissioners," I have the honor to submit to your Honorable d my second annual report of the condition of the Works, with accompanying table, ing in detail the Works are in good repair.

e repairs the past year have been very great, owing to the re-laying of 360 feet of 6-inch on Jackson Street, from 8th to 9th, on account of the grade of street being lowered, the re-laying of 725 feet of 16-inch pipe on 7th, from Minnesota to near Wabasha t, caused by change of grade, the old pipe running from 8 to 14 feet deep, and at that it would take too long to repair any defect, and as the pipe was on the grade of sewer re-laid it by your order before the streets were paved. I would state that the old pipe n good repair. There were 500 feet of 6-inch pipe raised on 14th Street on account of ge of grade, of which the Board of Public Works assessed on the street grade, changed, paid the cost of raising the pipe to the Water Board. I would say it is a rare case n a pipe is laid before the street is graded that it will not cost as much to put the pipe,

hydrants, gates and stop-boxes on the grade as the original cost, and oftentimes more. And the changing of 35 fire hydrants, 18 were changed on account of change of grade and width of sidewalk, which would all have been saved if the streets had a stone curbing—6 on account of change of main and 11 on account of freezing; most of the above repairs had to be done early in the season; and, as I was short of skilled labor at that time, it was very hard on the skilled labor I had at that time as well as myself.

I would respectfully ask your Honorable Board to petition the City Council to have all streets that are graded to have stone curbing. It will save thousands of dollars to the city on account of change of hydrants and stop-boxes, as fully thirty per cent. of the hydrants and stop-boxes will have to be moved which could be saved by stone curbs; and there is nothing that will finish a street as neatly.

There were 152 feet of 6-inch pipe on Cedar street: at 5th street, relaid with 12-inch pipe, and 121 feet of 4-inch pipe on East 5th street, east of Willius street, relaid with 6-inch pipe. There were 288 feet of 4-inch pipe on Cedar street, north of 9th street, and 233 feet of 4-inch pipe on 9th street east of Cedar street, taken out of tunnel by order of the City Engineer on account of the pipe and tunnel being on grade of sewer. All the above pipe were laid on other streets.

There were laid the past season 4,494 feet of 4-inch pipe, 17,551 feet of 6-inch pipe, 2,445 feet of 12-inch pipe, 1,412 feet of 16-inch pipe, and 25 feet of 24-inch pipe, making 25,927 feet, or 4 4807-5280 miles; making total pipe laid to date 28 4188-5280 miles. There were 39 new fire hydrants set the past pear, making 236 fire hydrants and 24 street sprinkling hydrants set the past year. The sprinkling hydrants save a great expense and annoyance to the management of the works, and danger in case of fire; for when the sprinklers use the fire hydrants they are never in good repair in case of fire—making 260 fire and sprinkling hydrants.

The winter of 1882 and 1883 was as severe on water works as I have had the misfortune to encounter. In eleven years I have had charge of the works, and we did not have a broken hydrant last winter, and but little freezing considering the severe winter, which is due to the judgment, thoroughness, care and experience of Mr. Thomas McGovern, who had the charge of them for the past six years, and who kept the hydrants in such thorough repair. And his resignation I regard a great loss to the works; for any new man must have at least two years' experience in this climate to keep them in proper repair. I would here state that in cities of this latitude they employ a man to every 100 hydrants; I have one man for 260 hydrants, 272 gates and 135 meters, and no one man can do the work as should be done. Mr. Rybeck, the man in charge of hydrants, gates and meters, is an earnest, watchful and careful man. To put an inexperienced man in charge of the most important branch of the works should never be done, and then do two men's work. He was the very best man I knew of. I would respectfully ask to be allowed to employ an experienced man. It is very easy to keep water works in good repair, but very hard to put them in repair when out of repair, as I found them eleven years ago. Out of 85 hydrants 20 had to be dug out and repaired every winter, at great expense and annoyance to consumers. When the water is shut off, and danger in case of fire, and out of 65 gates at that time 15 were broken and useless, all of which were broken in three years by carless handling. In the past eight years I have had less than one-half of one per cent. of hydrants to dig out and repair in winter, and gates to repair per year.

There have been 301 new service connections laid the past year—32 more than 1882—making total service pipes 2,431. There were 25 old service pipes relaid on account of rebuilding old ones for new. It is very rare that the old pipes will answer, on account of area way and the old one being broken in excavation of cellar and building foundation of new buildings, and then the old service must be cut off at the main, for a service not in use is more liable to freeze and leak than one in use.

I would recommend the coming year that plumbers put all service connections from the main, as it only can be done at a loss to the city if done by the Board, and with proper rules and regulations can be done by the plumbers without loss to the city, and to put them in as promptly, as they should be at all times, is impossible for me to do. I will have four gangs of pipe layers at work and from 20 to 30 hydrants to change on account of grading and paving of streets; it will be impossible for me to give that branch of the work any of my time.

The tunnel on St. Peter street north of 5th street, and on 4th street, west of Franklin, and the 16-inch pipe extension on Fort street, south of Leach street, are now in the course of construction, which was ordered some time ago. This class of work can be done cheaper in winter than in summer, and by doing it in the winter it enables me to keep our skilled force for the summer's work. When skilled men are discharged in the fall that class of labor always find work elsewhere and it is not always that their service can be obtained when wanted.

It will be necessary to lay a 12-in. pipe sluiceway at Charles Lake the coming year, so it will be beyond the reach of fishermen, for it is impossible to keep anything in repair they can destroy.

The iron Gate Boxes adopted by your Honorable Board a year ago save great expense, annoyance and danger to man or beast being injured, they are made with extension tops so they conform with our various changes of grade we have; they have in every instance given perfect satisfaction.

The Mathews hydrant adopted by you has given perfect satisfaction; they are double the capacity of the Holly hydrant; the old Holly are set for street sprinkling with 2-in. connections, with independent shut-offs so in case of repair only the hydrant being repaired is out of service.

The waste of water by consumers here as in other cities is a great annoyance to the management of the Works, and I have been given every facility by your Honorable Board I asked; they are harsh means but it will be necessary to enforce them the coming winter

The 29th day of October last I had two men quite badly injured, one very badly bruised the other his arm broken. I was much grieved at the misfortune of the men, as in 17 years I have been on public works they are the first men I ever had seriously injured.

Our extension account has been very expensive this year owing to the amount of rock and tunnel work, costing from $1.50 to $2.50 per foot for excavation of trench, as there were 6,900 feet of that class of work done the past year.

The following sheets will show the inventory of stock, tools and quantity, size and location of pipe, hydrants and gates.

I tender my sincere thanks to your Honorable Board for the uniform kindness I have received at your hands.

Respectfully,

J. B. Overton, Supt.

PIPE RECOMMENDED TO BE LAID IN 1884.

STREET.	4 Inch	6 Inch	12 Inch	16 Inch
Oak street from College ave to 5th	.....	1,250	.....	.....
Robert street from 12th to Bluff, if graded	.....	1,250	.....	.....
14th street from Jackson to Robert	.....	500	.....	.....
St. Peter from 4th to 6th	.....	500	.....	.....
13th street from Somerset to Canada	.....	750	.....	.....
15th street from Broadway to Jackson	.....	1,250	.....	.....
Canada street from 14th to 15th	.....	300	.....	.....
Broadway from 13th to 15th	.....	575	.....	.....
Leech street from Smith to Goodrich	.....	1,100	.....	.....
Ramsey street from Leech to Pleasant	.....	1,400	.....	.....
Pleasant avenue from Ramsey to Forbes	.....	1,000	.....	.....
Prince street from Broadway to John	.....	1,000	.....	.....
6th street from Fort to Pleasant	.....	500	.....	.....
Fort street from Goodrich to S. line R.R.	.....	.....	.....	2,500
Exchange street from Walnut to 3rd	1,000	.....	.....	.....
Chestnut street from Fort to Exchange	.....	375	.....	.....
Goodrich avenue from Fort to S. line R.R.	.....	1,300	.....	.....
Extra 4-inch Pipe for Hydrants	3,000	.....	.....	.....
	4,000	13,050		2,500

LOCATION, SIZE AND AMOUNT OF WATER MAINS

LAID FROM DECEMBER 1, 1882, TO DECEMBER 1, 1883.

				4 In.	6 In.	12 In.	16 In.	24 In.
Water	on	April	24, 1883	14th street E. of Jackson	.....	159	.....	.....	.....
"	"	May	8, 1883	Connect Exchange with Wilkin	20	.....	.....	.....	.....
"	"	May	8, 1883	Wilkin street, Sherman to Bluff	.....	1154	.....	.....	.....
"	"	May	29, 1883	McBoal, Wilkin to Forbes	.....	864	.....	.....	.....
"	"	June	9, 1883	Wacouta, Third to Seventh	40	1210	.....	.....	.....
"	"	June	13, 1883	Fifth street, Sibley to Kittson	1326	1018	.....	.....	.....
"	"	June	15, 1883	Sixth street, Jackson to Kittson	1806	.....	.....	.....	.....
"	"	June	20, 1883	Tenth street, Locust to Cedar	617	1005	.....	.....	.....
"	"	June	20, 1883	Robert street, 9th to 10th	.....	375	.....	.....	.....
"	"	June	22, 1883	Jackson street, 14th to 15th	.....	255	.....	.....	.....
"	"	July	3, 1883	Cedar street, 3rd to 10th	.....	.....	2445	.....	.....
"	"	July	13, 1883	Ninth street, Robert to Cedar	.....	754	.....	.....	.....
"	"	July	12, 1883	Sherman street, Fort to Exchange	.....	533	.....	.....	.....
"	"	July	26, 1883	Kittson street, 5th to 7th	.....	546	.....	.....	.....
"	"	July	26, 1883	Seventh at Kittson	.....	20	.....	.....	.....
"	"	August	3, 1883	Otsego S., Lafayette to Mt. Ida	.....	675	.....	.....	.....
"	"	August	10, 1883	North street, Bedford to Burr	.....	488	.....	.....	.....
"	"	August	14, 1883	Bradley street, Woodward to North	.....	837	.....	.....	.....
"	"	August	14, 1883	Hopkins street, W. of Bradley	.....	90	.....	.....	.....
"	"	August	21, 1883	Bedford street, North St. to Minnehaha	.....	1278	.....	.....	.....
"	"	August	23, 1883	Oak street, N. and S. of Chestnut	.....	393	.....	.....	.....
"	"	Sept.	7, 1883	Broadway, 3rd to 7th	.....	.....	.....	1412	25
"	"	Sept.	7, 1883	Pleasant avenue, Sherman to Forbes	.....	328	.....	.....	.....
"	"	Sept.	7, 1883	Forbes street, Pleasant ave. to McBoal	.....	1395	.....	.....	.....
"	"	Sept.	29, 1883	Eighth street, Cedar to Minnesota	380	.....	.....	.....	.....
"	"	October	15, 1883	Beaumont street, Bradley and DeSota	.....	835	.....	.....	.....
"	"	October	19, 1883	Burr street, Collins to Farquier	.....	1500	.....	.....	.....
"	"	October	24, 1883	College ave., Wabashaw to Oak	.....	410	.....	.....	.....
"	"	Nov.	2, 1883	Sibley street, 7th to 8th	305	.....	.....	.....	.....
"	"	Nov.	10, 1883	Fourth street, from Wabashaw to John	.....	1389	.....	.....	.....
"	"	Nov.	10, 1883	John street at Fourth	.....	20	.....	.....	.....
"	"	August	21, 1883	Collins at Bedford	.....	20	.....	.....	.....
				Total, 4 4807-5280 miles	4,494	17,551	2,445	1,412	25

LOCATION, SIZE AND NO. OF FEET OF WATER PIPES

LAID TO DECEMBER 1, 1883.

	4 Inch	6 Inch	12 Inch	16-Inch	24 Inch
Third street from Broadway to College ave		6797			
Fourth street from Franklin to John		6247			
Fifth street from Kittson to Third	4849	1378			
Sixth street from Fort to Kittson	4776	431			
Seventh street from Kittson to Seven Corners		857	1675	4250	
Eighth street from Cedar to Neill	4358				
Ninth street from Fort to Neill	980	4808			
Tenth street from College avenue to Locust	2154	3118			
Eleventh street from Cedar to Olive	565	1259			
Twelfth street from Robert to Pine	280	420			
Thirteenth street from Jackson to Canada		1000			
Fourteenth street from Jackson to Canada		950			
Broadway from River to Grove	195	1416		1412	25
Burr street from Partridge to Farquier		2448			
Bradley street from Woodward to North		1002			
Bruno street from East of Lafayette		47			
Becker street from Lafayette avenue to DeSota		450			
Bedford street from North to Minnehaha		1278			
Beaumont street from Bedford to DeSota		835			
Canada street from Ninth to Fourteenth		1815			
Chestnut street from Fort to Exchange		156			
Cooper street from Ninth to Norris	986				
Cedar street from Third to College avenue		110	2445		
Collins street from Lafayette to Bedford		991			
College avenue from Cedar to Oak		1082			
DeBow street from Grove to Olmsted		960			
DeSota street from Collins to Hopkins		425			
Exchange street from St Peter to Wilkin	2417				
Fort street from Tenth to Leech		1537	1965		
Franklin street from Seventh to Sixth	170				
Forbes street from Pleasant to McBoal		1595			
Grove street from Monroe to Mississippi	133	1650			
Jackson street from Levee to Fifteenth		4587			
John street from Fourth to Tenth	314	835			
Hopkins street from DeSota to Bradley		700			
Lafayette avenue from Grove to Collins	205			2120	
Leech street from Fort to Ramsey		270			
Levee from Sibley to Jackson	340				
Locust street from Grove to Seventh				1025	
Market street from Third to Fourth	250				
Minnesota street from Third to Eighth	1742				
Mississippi street from Grove to Railroad Bridge		2676			
Monroe Place from Grove to Woodward	300				
Norris street from Canada to Cooper	575				
Neill street from Seventh to Eighth	325				
Nash street from Mississippi to DeBow		355			
North street from DeSota to Bedford		851			
McBoal street from Wilkin to Forbes		864			
Olmsted street from Stillwater to DeBow		623			
Olive street from Sixth to Grove	574				
Oak street from Fifth to Walnut		1078			
Otsego street from Lafayette to Mt. Ida		770			
Kittson street from Fifth to Seventh		546			
Pearl street from Jackson to Grove		1110			
Pine street from Ninth to Twelfth	593				
Pleasant avenue from Sixth to Forbes		2193			
Partridge street from DeSota to Bradley	472				
Rice street from College avenue to Summit		501			
Robert street from Third to Twelfth		3199			

	4 Inch	6 Inch	12 Inch	16-Inch	24 Inch
Rosabel street from Third to Seventh	.....	1401	.....	.....	.....
Sibley street from Levee to Eighth	630	1450	.....	.....	.....
Somerset street from Stillwater to Mississippi	1013	.....	.....	.....	.....
Stillwater street from Grove to Olmsted	910	50	.....	.....	.....
St. Paul street from Grove to Olmsted	960	.....	.....	.....	.....
St. Peter street from Fourth to Summit avenue	.....	2271	.....	.....	.....
Spruce street from Cooper to Wacouta	400	.....	.....	.....	.....
Sherman street from Fort to Bluff	.....	1051	.....	.....	.....
Temperance street from Eighth to Thirteenth	688	.....	.....	.....	.....
Wabashaw street from Third to Summit	.....	3362	.....	.....	.....
Wacouta street from Third to Spruce	630	1210	.....	.....	.....
Walnut street from Pleasant to Exchange	1438	.....	.....	.....	.....
Washington street from Fifth to Chestnut	1446	.....	.....	.....	.....
Willius street from Fifth to Seventh	550	.....	.....	.....	.....
Waverly Place from Lafayette avenue to Stillwater	.....	340	.....	.....	.....
Westminster street from Waverly Place North	605	75	.....	.....	.....
From Collins to Lake Phalen	.....	.....	.....	15964	7000
Wilkin street from Sherman to Bluff	.....	1154	.....	.....	.....
	36,763	77,384	6,085	24,771	7,025

TOTAL PIPE LAID DECEMBER 1, 1883.

4 Inch.....36,763
6 Inch.....77,384
12 Inch..... 6,085
16 Inch.....24,771
24 Inch..... 7,025

152,028 feet or 28 4188-5280 miles.

LIST OF HYDRANTS.

Number.	LOCATION.	Name of Hydrants.	Size of Pipe.
1	Woodward and Monroe	Holly.	4-in
2	Grove and Lafayette	"	6
3	Westminster and Waverly	"	6
4	Westminster and Herkimer	"	4
5	Grove and St. Paul	"	6
6	Somersett and Stillwater	"	4
7	St. Paul and Somersett	"	4
8	De Bow and Somersett	"	6
9	Mississippi and Somersett	"	4
10	Grove and Mississippi	"	6
11	Pine and Eleventh,	"	4
12	Canada and Pearl	"	6
13	Canada and Spruce	"	6
14	Pearl, in middle of block	"	6
15	Jackson and Pearl	Mathews.	6
16	Robert and Twelfth	"	6
17	Robert and Eleventh	Holly.	6
18	Minnesota and Eleventh	"	6
19	Cedar and Eleventh	"	6
20	Wabasha and College ave	Mathews.	6
21	Wabasha and Tenth	"	6
22	St. Peter and Tenth	Holly.	6
23	St. Peter and College	"	6
24	St. Peter and Summit	"	6
25	Tenth and College	"	6
26	Tenth, between St. Peter and Fort	"	6
27	St. Peter and Exchange	Mathews.	6
28	Wabasha and Exchange	"	6
29	St. Peter and Ninth	Holly.	6
30	Wabash and Ninth	Mathews.	6
31	Jackson and Ninth	"	6
32	Cooper and Ninth	Holly.	6
33	Rosabel and Ninth	Mathews.	6
34	Pine and Ninth	Holly.	6
35	John and Ninth	"	6
36	Locust and Ninth	Mathews.	6
37	Neill and Eighth	Holly.	4
38	Locust and Fifth	Mathews.	6
39	Olive and Eighth	Holly.	4
40	Broadway and Eighth	"	6
41	Wacouta and Eighth	"	4
42	Jackson and Eighth	Mathews.	6
43	Robert and Eighth	Holly.	4
44	Burr and Partridge	"	6
45	Burr and Hopkins	"	6
46	Hopkins and De Sota	"	6
47	Oak and Third	"	6
48	Pleasant and Third	"	6
49	College ave. and Third	"	6
50	Exchange and Sherman	"	4
51	Walnut and Exchange	"	4
52	Fort and Sherman	Mathews.	6
53	Fort and Walnut	Holly.	12
54	Fort and Chestnut	Mathews.	6
55	Fort, between Third and Chestnut	Holly.	12
56	Seven Corners	Mathews.	12
57	Seventh street, back of Winslow House	"	12
58	Seventh and Sixth	"	12
59	Franklin and Seventh	"	12
60	Seventh and Sixth	"	12
61	St. Peter and Seventh	Holly.	12
62	Wabasha and Seventh	"	16
63	Cedar and Seventh	Mathews.	12
64	Minnesota and Seventh	"	16

Number.	LOCATION.	Name of Hydrants.	Size of Pipe.
65	Robert and Seventh	Mathews.	16-in
66	Jackson and Seventh	"	6
67	Sibley and Seventh	Holly.	16
68	Wacouta and Seventh	"	16
69	Rosabel and Seventh	"	16
70	Broadway and Seventh	Mathews.	16
71	Pine and Seventh	Holly.	16
72	Olive and Seventh	"	16
73	John and Seventh	"	16
74	Locust and Seventh	"	16
75	Neill and Seventh	"	6
76	Willius and Sixth	"	4
77	Pine and Sixth	Mathews.	4
78	Jackson and Sixth	Holly.	6
79	Robert and Sixth	"	6
80	Minnesota and Sixth	"	4
81	Wabasha and Sixth	"	6
82	Washington and Fifth	"	4
83	Wabasha and Fifth	"	6
84	Cedar and Fifth	Mathews.	4
85	Minnesota and Fifth	Holly.	4
86	Robert and Fifth	"	6
87	Jackson and Fifth	"	6
88	Sibley and Fourth	"	6
89	Jackson and Fourth	Mathews.	6
90	Robert and Fourth	Holly.	6
91	Minnesota and Fourth	Mathews.	6
92	Wabasha and Fourth	Holly.	6
93	Washington and Fourth	"	4
94	Exchange and Third	"	6
95	Third street, between Exchange and Franklin	Mathews.	6
96	Franklin and Third	Holly.	6
97	Washington and Third	"	6
98	Market and Third	"	6
99	Washington and Eagle	"	4
100	St. Peter and Third	"	6
101	Wabasha and Third	Mathews.	6
102	Cedar and Third	"	12
103	Minnesota and Third	Holly.	6
104	Robert and Third	"	6
105	Jackson and Third	Mathews.	6
106	Sibley and Third	"	6
107	Jackson and Levee	Holly.	6
108	Jackson and Tenth	"	6
109	Jackson and Eleventh	"	6
110	Sibley and Levee	"	4
111	St. Peter and Fifth	"	6
112	Robert and Ninth	"	6
113	Wacouta and Tenth	"	4
114	Mississippi and Nash	"	6
115	Broadway and Twelfth	"	6
116	Broadway and Tenth	"	6
117	Elm and Wilkin	"	4
118	Cedar and Ninth	Mathews.	6
119	St. Peter and Fourth	Holly.	6
120	Cedar and Sixth	"	4
121	Franklin and Fourth	"	6
122	Fort and Leech	"	12
123	Stillwater and Grove	"	6
124	De Bow and Grove	"	6
125	Canada and Tenth	"	6
126	Wacouta and Ninth	"	6
127	Eighth and Temperance	"	4
128	Seventh and Willius	"	6
129	Seventh and Kittson	Mathews.	6
130	Ramsey and Leech	Holly.	6
131	Collins and Lafayette	"	6
132	Sibley and Sixth	Mathews.	6
133	Willius and Fifth	Holly.	4
134	Willius and Eighth	"	4
135	Cooper and Tenth	"	4
136	Pleasant, between Third and Chestnut	"	6
137	Pleasant and Chestnut	"	6
138	Pleasant and Walnut	"	6
139	Oak, between Third and Chestnut	"	6
140	Fort street, 150 feet south of Tenth	"	6
141	Fort and Ninth	"	6
142	Fort and Sixth	"	6
143	Fort and Fifth	"	6

Number.	LOCATION.	Name of Hydrants.	Size of Pipe.
144	Canada and Thirteenth	Holly.	6-in
145	Thirteenth, between Canada and Temperance	"	6
146	Thirteenth, at head of Temperance	"	6
147	Mississippi and Mt. Airy	"	6
148	Mississippi and Glencoe	"	6
149	Mississippi street, 200 feet south of Pennsylvania avenue	"	6
150	Mississippi and Pennsylvania avenue	"	6
151	De Bow and Nash	"	6
152	Olmsted and De Bow	"	6
153	Olmsted and St. Paul	"	6
154	Olmsted and Stillwater	"	6
155	Ninth and Exchange	"	6
156	Ninth and Franklin	Mathews.	6
157	Wabasha and Summit	Holly.	6
158	Robert and Tenth	"	6
159	Canada and Norris	"	6
160	Norris and Cooper	"	4
161	Spruce and Wacouta	"	4
162	Spruce, at head of Cooper	"	4
163	College, 300 feet north of St. Peter	"	6
164	Fourth and Wacouta	"	6
165	Fifth and Sibley	"	6
166	Walnut and Oak	"	4
167	Fourth and Rosabel	"	6
168	South side of Third street, on Broadway, at railroad	"	4
169	Third and Broadway	"	6
170	Third and Rosabel	Mathews.	6
171	Third and Wacouta	"	6
172	Rice and Summit	Holly.	6
173	Fourth and Market	"	6
174	Collins and Bedford	"	6
175	Collins and Burr	Mathews.	6
176	Tenth and Pine	Holly.	6
177	Tenth and Olive	"	6
178	Tenth and John	"	6
179	Fourteenth and Canada	"	6
180	Fourteenth, between Canada and Jackson	"	6
181	Partridge and Bradley	"	4
182	Fourth and Broadway	Mathews.	6
183	Exchange and Sixth	Holly.	4
184	Burr and North	"	6
185	North and De Soto	"	6
186	Fifth and Rosabel	"	6
187	Sixth and Rosabel	"	6
188	Pleasant and Sherman	"	6
189	Fourth and Jackson	Mathews.	6
190	John and Fourth	"	6
191	John and Fifth	"	6
192	John and Sixth	"	6
193	Bruno and Lafayette	"	6
194	Lafayette, and St. Paul M. & M. railroad	"	16
195	Lafayette avenue and Becker street	"	6
196	Pleasant avenue and Sixth	"	6
197	Jackson and Thirteenth	"	6
198	Jackson and Fourteenth	"	6
199	Wilkin and Mc Boal	"	6
200	Wacouta and Third	"	6
201	Mc Boal and Leech	"	6
202	Wacouta and Sixth	"	6
203	Wacouta and Fifth	"	6
204	Fifth and Broadway	"	4
205	Sixth and Broadway	"	4
206	Tenth and Minnesota	"	6
207	Tenth and Cedar	"	6
208	Jackson and Fifteenth	"	6
209	Cedar and Eighth	"	12
210	Cedar and Exchange	"	12
211	Ninth and Minnesota	"	6
212	Wilkin and Smith	"	6
213	Fifth and Neill	"	6
214	Kittson and Fifth	"	6
215	Kittson and Sixth	"	6
216	Sixth and Neill	"	4
217	Otsego and Mt. Ida	"	6
218	Bradley and Woodward	"	6
219	Bradley and North	"	6
220	Hopkins and Bradley	"	6
221	Oak and Chestnut	"	6
222	Bedford and Beaumont	"	6

Number.	LOCATION.	Name of Hydrants.	Size of Pipe.
223	Bedford and Minnehaha	Mathews.	6-in
224	Forbes and Pleasant	"	6
225	Forbes and Ramsey	"	6
226	Forbes and Smith	"	6
227	Fourth and Cedar	"	6
228	Eighth and Minnesota	"	4
229	Beaumont and Bradley	"	6
230	Beaumont and De Soto	"	6
231	Burr and Beaumont	"	6
232	Burr and Minnehaha	"	6
233	Burr and Farquier	"	6
234	Forbes and Fort	"	6
235	Fourth and Pine	"	6
236	Fourth and Olive	"	6

146 Holly Hydrants and
90 Mathews Hydrants.
35 Holly Hydrants reset with Mathew this season.
39 new Mathew Hydrants placed this year.
Total Fire Hydrants, 236.

STREET SPRINKLING HYDRANTS.

Number.	LOCATION.	Name of Hydrant.	Size of Pipe.
1	Sixth and Jackson	Holly.	2-in
2	Fifth and Wacouta	"	2
3	Wacouta and Third	"	2
4	Fort and Third, at Seven Corners	"	2
5	Third and Jackson	"	2
6	Minnesota and Third	"	2
7	Fifth and Robert	"	2
8	Robert and Seventh	"	2
9	Wacouta and Seventh	"	2
10	Ninth and Cedar	"	2
11	Eighth and Broadway	"	2
12	Willius and Seventh	"	2
13	Walnut and Seventh	"	2
14	Kittson and Seventh	"	2
15	Ninth and St. Peter	"	2
16	Pine and Tenth	"	2
17	De Bow and Grove	"	2
18	Waverly Place and Westminster	"	2
19	Leech and Seventh	"	2
20	Broadway and Fourth	"	2
21	Cedar and Seventh	"	2
22	College avenue and Wabasha	"	2
23	College avenue and Tenth	"	2
24	Pleasant avenue and Third	"	2

All the above Street Sprinkling Hydrants were placed this year.
Total, 24.

LOCATION AND SIZE OF VALVES.

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	
Third	Between Cedar and Minnesota					1		
Third	West line of Jackson					1		
Third	East line of Jackson					1		
Third	E. line of Wacouta					1		
Third	W. line of Broadway					1		
Third	S. line of Fort					1		
Third	N. line of Fort					1		
Third	E. line of St. Peter					1		
Third	W. line of Washington					1		
Fourth	W line of Broadway					1		
Fourth	W. line of Rosabel					1		
Fourth	W. line of Wacouta					1		
Fourth	E. line of Jackson					1		
Fourth	W. line of Jackson					1		
Fourth	W. line of Wabashaw					1		
Fourth	W. line of Market					1		
Fourth	E. line of Cedar					1		
Fourth	E. line of Minnesota					1		
Fourth	W. line of Cedar					1		
Fourth	E. line of Broadway					1		
Fourth	E. line of Olive					1		
Fifth	E. line of Jackson						1	
Fifth	W. line of Jackson						1	
Fifth	E. line of Minnesota						1	
Fifth	E. line of Oak						1	
Fifth	E. line of Cedar						1	
Fifth	E. line of Wabashaw						1	
Fifth	W. line of Wabashaw					1		
Fifth	W. line of St. Peter						1	
Fifth	W. line of Washington						1	
Fifth	W. line of Cedar						1	
Fifth	E. line of Sibley						1	
Fifth	W. line of Broadway						1	
Fifth	E. line of John					1		
Fifth	W. line of Willius					1		
Fifth	W. line of Neill					1		
Fifth	W. line of Rosabel						1	
Fifth	E. line of Fort						1	
Sixth	E. line of Olive						1	
Sixth	W. line of Jackson						1	
Sixth	E. line of Minnesota						1	
Sixth	E. line of Cedar						1	
Sixth	E. line of Fort						1	
Sixth	E. line of Wabashaw						1	
Sixth	W. line of Willius						1	
Sixth	E. line of John						1	
Sixth	W. line of Cedar						1	
Sixth	E. line of Jackson						1	
Sixth	W. line of Neill						1	
Sixth	E. line of Sibley						1	
Sixth	W. line of Rosabel						1	
Sixth	E. line of Broadway						1	
Sixth	W. line of Kittson						1	
Sixth	W. line of Broadway						1	
Seventh	E. line of Locust					1		
Seventh	W. line of Jackson			1				
Seventh	Robert street blow off							1
Seventh	E. line of St. Peter				1			
Seventh	E. line of Third				1			
Seventh	E. line of Broadway			1				
Seventh	W. line of Broadway			1				
Seventh	W. line of Kittson					1		
Eighth	E. line of Locust						1	
Eighth	W line of Locust						1	
Eighth	E. line of Broadway						1	

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	3
Eighth	W. line of Broadway						1	
Eighth	W. line of Jackson						1	
Eighth	E. line of Cedar						1	
Eighth	W. line of Cooper						1	
Ninth	E. line of Locust						1	
Ninth	W. line of Locust					1		
Ninth	E. line of Broadway					1		
Ninth	W. line of Broadway					1		
Ninth	W. line of Jackson					1		
Ninth	W. line of St. Peter					1		
Ninth	E. line of Fort					1		
Ninth	E. line of Wabasha						1	
Ninth	E. line of Cedar					1		
Ninth	W. line of Cedar					1		
Ninth	E. line of Minnesota					1		
Ninth	W. line of Cooper					1		
Tenth	S. line of College avenue					1		
Tenth	W. line of St. Peter					1		
Tenth	E. line of St. Peter					1		
Tenth	E. line of Broadway					1		
Tenth	W. line of Canada						1	
Tenth	E. line of Jackson						1	
Tenth	E. line of Wabasha						1	
Tenth	W. line of Locust						1	
Tenth	E. line of Cedar					1		
Tenth	W. line of Robert					1		
Tenth	W. line of Jackson						1	
Tenth	W. line of Broadway						1	
Eleventh	E. line of Broadway						1	
Eleventh	W. line of Jackson					1		
Eleventh	W. line of Robert					1		
Twelfth	E. line of Broadway						1	
Thirteenth	W. line of Canada					1		
Thirteenth	E. line of Jackson					1		
Fourteenth	W. line of Canada					1		
Fourteenth	E. line of Jackson					1		
St. Peter	N. line of Seventh					1		
St. Peter	S. line of Tenth					1		
Wabasha	N. line of College avenue					1		
Wabasha	N. line of Ninth					1		
Wabasha	N. line of Seventh					1		
Wabasha	N. line of Third					1		
Wabasha	S. line of Fifth					1		
Cedar	Blow off at Sixth							1
Cedar	N. line of Third				1			
Cedar	S. line of Seventh				1			
Cedar	N. line of Seventh				1			
Cedar	Blew off at Eighth							1
Minnesota	N. line of Third						1	
Minnesota	S. line of Fifth						1	
Minnesota	S. line of Seventh						1	
Minnesota	N. line of Seventh						1	
Robert	N. line of Third					1		
Robert	N. line of Fourth					1		
Robert	N. line of Fifth					1		
Robert	N. line of Seventh					1		
Robert	S. line of Seventh					1		
Robert	N. line of Eighth					1		
Robert	S. line of Eleventh					1		
Robert	N. line of Ninth					1		
Robert	S. line of Twelfth					1		
Jackson	Blow off at Levee							1
Jackson	N. line of Levee						1	
Jackson	S. line of Fourth					1		
Jackson	N. line of Seventh					1		
Jackson	S. line of Seventh					1		
Jackson	N. line of Eighth					1		
Jackson	N. line of Ninth					1		
Jackson	S. line of Twelfth					1		
Jackson	N. line of Pearl					1		
Jackson	S. line of Fourteenth					1		
Sibley	S. line of Third						1	
Sibley	N. line of Third					1		
Sibley	S. line of Fifth					1		
Sibley	S. line of Seventh					1		
Sibley	N. line of Seventh						1	
Wacouta	S. line of Seventh						1	
Wacouta	N line of Tenth						1	
Wacouta	N. line of Third					1		

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	3
Wacouta	S. line of Fifth					1		
Wacouta	S. line of Sixth					1		
Rosabel	S. line of Fourth					1		
Rosabel	N. line of Fifth					1		
Rosabel	S. line of Seventh					1		
Pine	N. line of Ninth						1	
Broadway	N. line of Seventh					1		
Broadway	S. line of Grove					1		
Broadway	Blow off N. line of Third							1
Broadway	N. line of Third			1				
Broadway	S. line of Seventh			1				
Broadway	N. line of Seventh	1						
Broadway	N. line of Seventh					1		
Olive	S. line of Seventh						1	
Olive	S. line of Grove						1	
John	S. line of Tenth						1	
John	S. line of Seventh					1		
John	N. line of Fifth					1		
John	N. line of Fourth					1		
Locust	N. line of Seventh			1				
Willius	S. line of Seventh						1	
Willius	N. line of Fifth						1	
Neill	N. line of Seventh						1	
Kittson	S. line of Seventh					1		
Kittson	N. line of Fifth					1		
Fort	Blow off at Walnut							1
Fort	S. line of Third				1			
Fort	N. line of Fourth					1		
Fort	N. line of Sixth					1		
Fort	S. line of Tenth					1		
Fort	N. line of Ramsey				1			
Fort	S. line of Leech				1			
Leech	N. line of Fort					1		
Oak	N. line of Third					1		
Oak	S. line of Third					1		
Oak	N. line of Walnut					1		
Pleasant ave	N. line of Walnut					1		
Pleasant ave	S. line of Third					1		
Pleasant ave	N. line of Third					1		
Market	N. line of Third						1	
Chestnut	E. line of Fort					1		
Walnut	E. line of Fort						1	
Walnut	W. line of Fort						1	
Walnut	E. line of Pleasant						1	
Exchange	N. line of Sherman						1	
Exchange	N. line of Seventh						1	
Exchange	W. line of St. Peter						1	
Exchange	S. line of Ninth						1	
Exchange	E. line of Wilkin						1	
Sherman	E. line of Exchange					1		
Sherman	E. line of Wilkin					1		
Sherman	E. line of Fort					1		
Wilkin	N. line of Smith					1		
Franklin	N. line of Seventh						1	
Washington	S. line of Third						1	
Washington	N. line of Third						1	
Washington	N. line of Fourth						1	
College ave	W. line of St. Peter					1		
College ave	E. line of Wabasha					1		
College ave	W. line of Wabasha					1		
College ave	W. line of Tenth					1		
Norris	W. line of Canada						1	
Cooper	N. line of Ninth						1	
Cooper	N. line of Spruce						1	
Cooper	N. line of Tenth						1	
Temperance	N. line of Eighth						1	
Temperance	N. line of Pearl						1	
Pearl	E. line of Jackson					1		
Canada	N. line of Ninth					1		
Canada	S. line of Pearl					1		
Canada	N. line of Pearl					1		
Mississippi	N. line of Grove					1		
Mississippi	N. line of Nash					1		
Mississippi	N. line of Glencoe					1		
Grove	W. line of Lafayette					1		
Grove	W. line of Mississippi					1		
Somerset	W. line of Stillwater						1	
Somerset	E. line of De Bow						1	
Somerset	W. line of De Bow						1	

STREET.	LOCATION.	SIZE.						
		24	20	16	12	6	4	3
Nash	E line of Mississippi	....	....	....	....	1	....	....
Waverly Place	W. line of Lafayette	....	....	....	....	1	....	....
Waverly Place	E. line of Stillwater	....	....	....	....	1	....	....
De Bow	S. line of Olmsted	....	....	....	....	1	....	....
De Bow	N. line of Grove	....	....	....	....	1	....	....
St. Paul	S. line of Olmsted	....	....	....	....	....	1	....
St. Paul	N. line of Grove	....	....	....	....	....	1	....
Stillwater	N. line of Grove	....	....	....	....	....	1	....
Stillwater	S. line of Olmsted	....	....	....	....	1	....	....
Lafayette ave	S. line of Collins	....	....	1	....	....	....	....
Lafayette ave	At bridge, on hydrant	....	....	....	....	....	1	....
Lafayette ave	End of retaining wall	....	....	....	....	....	1	....
Lafayette ave	Blow off gate	....		....	....	....	....	1
Becker	S. line of Lafayette	....	....	....	....	....	1	....
Partridge	W. line of Bradley	....	....	....	....	....	1	....
Collins	E. line of Lafayette	....	....	....	....	1	....	....
Collins	W. line of Bedford	....	....	....	....	1	....	....
North	W. line of Bradley	....	....	....	....	1	....	....
Hopkins	E. line of De Sota	....	....	....	....	1	....	....
Hopkins	W. line of Bradley	....	....	....	....	1	....	....
De Soto	S. line of Collins	....	....	....	....	1	....	....
Bruno	E. line of Lafayette	....	....	....	....	1	....	....
Burr	S. line of North	....	....	....	....	1	....	....
Burr	S. line of Hopkins	....	....	....	....	1	....	....
Burr	N. line of Collins	....	....	....	....	1	....	....
Burr	N. line of Beaumont	....	....	....	....	1	....	....
Bradley	N. line of Partridge	....	....	....	....	1	....	....
Otsego	N. line of Lafayette	....	....	....	....	1	....	....
Bedford	N. line of North	....	....	....	....	1	....	....
Beaumont	W. line of Bedford	....	....	....	....	1	....	....
Forbes	N. line of Ramsey	....	....	....	....	1	....	....
Forbes	N. line of Smith	....	....	....	....	1	....	....
Forbes	N. line of Fort	....	....	....	....	1	....	....
Forbes	S. line of Fort	....	....	....	....	1	....	....
McBoal	E. line of Forbes	....	....	....	....	1	....	....
McBoal	W. line of Wilkin	....	....	....	....	1	....	....
VALVES ON MAINS FROM DE SOTA STREET TO LAKE PHALEN.								
On 24 inch Main	At Gate House	1	....	....	....	....	....	....
" 24 " "	At Plow Works	1	1	....	....	....	....	....
" 24 " "	Blow off near Railroad, Plow Works	....	....	....	....	1	....	....
" 24 " "	Relief Valve near Railroad, Plow Works	....	....	....	....	1	....	....
" 16 " "	At Gate House	....	1	....	....	....	....	....
" 16 " "	Creek at Harvester Works	....	....	1	....	....	....	....
" 16 " "	At Plow Works	....	....	1	....	....	....	....
" 16 " "	Seventh Street and Phalen Creek	....	....	1	....	....	....	....
" 16 " "	Payne and Ross	....	....	1	....	....	....	....
" 16 " "	Seventh and Phalen Creek—Blow off	....	....	....	....	....	....	1
" 16 " "	Forrest and Cypress—Blow off	....	....	....	....	....	....	1
" 16 " "	North line of Arcade	....	....	....	....	....	....	1
Total to December 1, 1883		3	2	11	8	147	91	10
Number laid in 1883		1	....	4	4	40	23	3

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1883.

27 feet, 24 inch cast iron pipe,
1,272 feet, 16 inch cast iron pipe,
36 feet, 12 inch cast iron pipe,
421 feet, 6 inch cast iron pipe,
276 feet, 4 inch cast iron pipe,
24 feet, 3 inch cast iron pipe,
7 — 16 feet, curvature pipe,
2 — 16 feet, sleeves,
5 — 16x6 — 4 way branches,
1 — 16x6 — 3 way branches.
1 — 16x4 — 3 way branches,
1 — 12x6 — 4 way branches,
1 — 12x4 — 3 way branches,
3 — 12 inch sleeves,
5 — 12 inch plugs,
8 — 6x6 — 4 way branches,
5 — 6x4 — 4 way branches,
2 — 6x6 — 3 way branches,
8 — 6x4 — 3 way branches,
4 — 6x3 — 3 way branches,
6 — 6 inch ¼ bends,
4 — 6 inch curve pipe,
6 — 6 inch sleeves,
2 — 6 inch hoods,
60 — 6 inch plugs,
1 — 6 inch to 4 inch reducer,
2 — 4x4 — 4 way branches,
5 — 4x4 — 3 way branches,
2 — 4x3 — 3 way branches,
6 — 4 inch ¼ bends,
21 — 4 inch curve pipe,
11 — 4 inch sleeves,
6 — 4 inch hoods,
25 — 4 inch plugs,
1,850 pounds pig lead,
70 pounds hemp packing,
2 cans blasting powder,
300 feet fuse.

GATES AND GATE DUPLICATES.

2 — 16 inch gates for cast iron pipe,
1 — 12 inch gate for cast iron pipe,
8 — 6 inch gates for cast iron pipe,
12 - 4 inch gates for cast iron pipe,
1 — 3 inch gate for cast iron pipe,
1 — 3 inch gate for wrought iron pipe,
1 — 2½ inch gate for wrought iron pipe,
4 — 2 inch gates for wrought iron pipe,
14 Bingham & Morgan's iron gate boxes, complete,
6 gate covers (old pattern).

DUPLICATES FOR GATES.

2 — 16 inch gate stems,
1 — 16 inch nut and wedge,
6 — 6 inch gate stems,
9 — 4 inch gate stems,
3 — 4 inch gate faces,
2 — 4 inch nut and wedge,
2 — 3 inch gate stems,
1 — 3 inch nut and wedge,
6 nuts for top of gate,
Hydrant and hydrant duplicates,
11 Mathews hydrants complete,
1 Holly hydrant for sprinkling,
1 steamer for thawing out hydrants.

DUPLICATES.

6 valves for Mathew hydrants,
2 ring valves for Mathew hydrants,
2 sleeve nuts for Mathew hydrants,
12 outside casings for Holly hydrants,
6 inside casings for Holly hydrants,
24 stem rods for Holly hydrants,
6 hydrant tops for Holly hydrants,
1 Holly pot for tunnel hydrant,
9 valves for Holly hydrants,
28 hydrant valve stems,
27 pairs packing for Holly hydrants,
2 boxes hydrant bolts for Holly hydrant,
1 kit of tools for repairing hydrants,
11 drip boxes for hydrants,
6 hydrant wrenches.

PIPE LAYING AND TRENCHING TOOLS.

3 lead ladles,
3 lead pots and furnace,
3 derricks,
1 pair tackle block,
1 pair tackle block and fall,
1 windlass,
1 pipe truck,
1 dirt truck,
5 gate wrenches,
1 pair rubber mitts,
7 pairs rubber boots,
3 hand saws,
1 buck saw,
16 tubular lanterns,
4 oil cans,
2 large monkey wrenches,
55 D handles and round mouth shovels,
42 picks,
3 axes,
1 hand ax,
1 hatchet,
6 heavy blasting chains,
460 blasting logs,
35 feet light chain,
27 sand rock picks,
1 lake dredge scraper,
15 buckets.
5 dirt rammers,
3 paving rammers,
21 pick handles,
2 sledge handles,
2 pipe scrapers,
9 wheelbarrows,
2 pairs grab tongs,
1 hoisting bucket,
1 plug and feather drill,
1 set plug and feather,
9 steel crowbars,
1 pipe bar,
2 pipe rammers,
11 rock drills,

6 steel sledge hammers,
6 scrapers,
1 puddling bar and wrench,
6 tamping bars,
2 striking hammers,
3 jumpers,
5 rock wedges,
1 grindstone,
6 pipe cutting chisles,
1 cutting hammer,
5 sets caulking tools,
3 tool boxes,
2 boxes blue clay.

CONNECTION STOCK AND TOOLS.

775 feet, from ½ to 2 inches galvanized iron pipe,
1 platform scales,
1 lot of iron pipe fittings L. T. couplings and unions, from ½ to 4 inches incl.,
¼ box candles,
¾ barrel kerosene oil,
½ gallon lard oil,
10 pounds horseshoe nails,
1 pipe vice,
1 blacksmith's vice (iron),
1 force pump,
1 drip pump,
1 set stock and dies, from ¼ to 1 inch incl.,
2 wrought iron pipes for pipe cutters,
8 pairs pipe tongs from ½ to 2 inches incl.,
1 oil stone,
1 crowfoot and ratchet,
1 set tap and drills, from ⅜ to 2 inches, incl.,
1 brace,
1 kit of plumber's tools complete,
2 Mueller's tapping machines complete,
5 polls for setting stop boxes,
1 clay auger,
1 sand auger,
5 rods for turning on and off water,
2 sets of 4 inch cement pipe molds,
1 sand pump,
2 connection scoops,
120 feet 4 inch cement pipe for stop boxes,
3 Bingham & Morgan stop boxes,
75 corporation taps, from 2 to 1 inch incl.,
80 taps and waste, from ½ to 1 inch,
95 pounds solder,
2,380 pounds lead pipe, from ½ to 1½ in. in
5 barrels cement,

MISCELLANEOUS AND STABLE ACCOUNT

2 horses,
1 truck,
1 buggy,
1 pair bob sleighs,
2 sets single harness,
4 horse blankets,
1 buffalo robe,
2 whips,
1 feed box,
3 forks,
1 wagon jack,
3 bushels oats,
1 bushel corn,
½ ton hay,
400 feet lumber,
1 anvil,
20 pounds 20-penny nails,
1 farmer's kettle,
1 truck skid,
300 brick,
1 drawing knife,
2 branding irons,
1 2-in. framing chisel,
1 gallon measure,
2 funnels,
3 mason's trowels.

METER ACCOUNT.

30 meters in good order, from ½ to 2 in. inc
11 meters in bad order, from ½ to 3 in. incl.

ENGINEER'S REPORT.

ST. PAUL, December 1, 1883.

To the Board of Water Commissioners:

GENTLEMEN:—I have the honor herewith to present my report as engineer of the Board for the year ending December 1, 1883.

Previous to my appointment to the position of engineer of your Board, extensive surveys and a careful examination had been made of various sources of water supply, and what is generally known as the Vadnais Lake project had been determined on.

It remains for me, under directions of your honorable body, to determine on proper lines for conduit, main and distribution pipes, and a suitable location of the reservoirs. The unusual amount of snow last winter, and the flooding of the marshes in the spring, delayed materially the commencement of the work. During the months of April and May several preliminary lines were run and carefully compared, and about the first of June a final location was determined on, the line as located and adopted by your honorable body.

Commencing at a gate chamber in Vadnais Lake, about two hundred feet from the shore, where the depth of water will best insure a pure supply; then following a southerly direction, along the edge of a marsh, it crosses the Minneapolis line of the St. Paul & Duluth Railroad 1,105 feet east of the town corner of sections 1, 6, 31, 36; then directly south to the valley of Phalen Creek it follows that valley to near south line of section 5; then diverging from the valley, crossing the south line of section 5, 908 feet east of southwest corner, passing over a high ridge to the east of Little Canada. Crossing marshes and following a natural valley, the course is generally southwest to the head of Sandy Lake, thence following the west side of this lake the conduit ends at a point about 1,800 feet south of the lake, near the site of a proposed reservoir, where a terminal chamber will be constructed, from which the cast iron mains will start, giving a direct connection independent of the reservoir.

From the terminal chamber a 30-inch main pipe for the low service will follow the Trout Brook valley and enter the city on Mississippi street.

The high service pipes will cross to Dale street and enter the city by Como and Western avenues, the size of the main on Dale street being 24-inch, reduced to a 20-inch on Como and Western avenues.

The water will be forced to the high elevations by pumping. For the present no difficulty will be experienced in pumping directly into the mains. Ultimately a high service reservoir is contemplated, the proper site for which is not determined on, although locations have been found of sufficient height to give the requisite head.

The brick conduit in course of construction is six feet high by five and one-half feet in width, and has a capacity when running full of about 30,000,000 gallons per day. The total length, when finished, will be four and one-half miles. Of this amount one mile has been completed, using in construction 1,500,000 brick, 1,000 cubic yards of stone, and 5,000 barrels of cement. A force is now at work tunneling and doing what grading is possible, to be ready for active work in the spring. About 1,500,000 brick additional have also been purchased and are being distributed on the line. It is also proposed to contract and have ready all the stone that will be required for gate chambers, waste wiers, terminal chambers and conduit.

The conduit, with the exception of about 200 feet, will be built entirely in excavations. The depth of excavations is generally from 10 to 16 feet, but some deep cuttings are encountered when the depth of excavations are from 25 to 40 feet.

The line also crosses several marshes, where it is required to excavate in places 10 feet below the bottom of the conduit for a foundation; and pile foundations will be required for short lengths.

A tunnel is now in progress about 450 feet in length, through one hill, where hardpan was found. Water has been encountered in large quantities, requiring the constant use of two and sometimes three steam pumps and several hand pumps, largely increasing the expense of the work.

A contract was let to Messrs. Morton & Terry for the excavations on the first two miles of work. All the rest of the work has been done by day labor. On this contract about 2,000 feet of work has been completed and nearly all the heavy excavations finished, leaving everything in shape to be pushed in the spring. I would, in this connection, recommend the entire work of a division to be let or done by the Board, as experience has proved that two parties, even with the best intentions to mutually assist each other, cannot work together without loss of time and money to both.

The lateness of the season in commencing and the amount of city work going on in town rendered it very difficult to get competent and skilled labor, and it was not until the middle of September that the work was thoroughly organized. I would therefore earnestly recommend that all the work south of Little Canada road be divided into sections and let by contract.

There are three and one-half times the amount already done to be finished next season. Much of this is difficult work, and, in my opinion, there is more than any one contractor can successfully undertake to carry out.

The contract should be let during the month of February and be required to be finished by August the first. The brick, stone, lumber and cement should be furnished by the city; all other material and labor by the contractors. In this way only can the completion of the work be assured for next season.

In relation to the pipe lines, the location has been made and the right of way will undoubtedly be secured during the present month. The contract should be let for wha ditching, grading and piling may be required, so that suitable roads to distribute the pip may be ready on its arrival. All the pipes for the mains have been contracted for at a remarkably low figure ($32 per ton on cars at St. Paul), and a list has been prepared of the pipe needed for distribution for low service and St. Anthony hill. This should be advertised for at once, to take advantage of the present low prices of iron.

Extensive pumping machinery for the high service will be required, and should be contracted for at an early date.

I trust that the plans may be so far advanced that they may be adopted and proposals received during the next month.

The system of distribution for Dayton's Bluff has also been determined on, including a fire service, and the lots for temporary pumping works purchased. On the completion of the Seventh street grading our contract can be made out at once for this district.

All the work at the present time is progressing favorably, and unless some unforeseen obstruction prevents, I hope and expect to carry out your instructions and have the additional supply for high and low service in working order at the close of next season.

I conclusion, permit me to express my thanks to the Board for their confidence and

support, and particularly to acknowledge the material assistance of your former president, Mr. C. D. Gilfillan, who, from his intimate knowledge of the details of construction and operation of the old works, has been of great assistance by his personal supervision and advice. I would also acknowledge the cheerful and hearty support of my own assistants and those connected with the office in the prosecution of the work.

Yours very respectfully, L. W. RUNDLETT.

*M. N. Baker 1881

THIRD ANNUAL REPORT

OF THE

Board of Water Commissioners,

OF THE

CITY OF SAINT PAUL.

December 1, 1884.

ST. PAUL:
DAILY GLOBE OFFICE.
1884.

THIRD ANNUAL REPORT

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1884.

OFFICERS

OF THE

CITY WATER WORKS.

DECEMBER 1, 1884.

BOARD OF WATER COMMISSIONERS:

J. F. HOYT, President,
C. W. GRIGGS,
C. D. GILFILLAN,
P. H. KELLY,
C. D. O'BRIEN, Mayor, member ex-officio.

JOHN CAULFIELD, Secretary,
JOHN B. OVERTON, Superintendent,
L. W. RUNDLETT, Engineer.

Third Annual Report of Board of Water Commissioners.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1884.

To the Honorable Common Council of the City of St. Paul:

GENTLEMEN:—We herewith submit the third annual report of the Board of Water Commissioners, for the year ending November, 30, 1884, consisting principally of the reports of the officers of this Board, hereto appended.

To these full and carefully written reports little need be added to exhibit to the public all that has been undertaken and accomplished; while from them much can be learned of the probable work of the future.

From the Secretary's report it will be seen that the receipts from water rents are now more than meeting the interest on the bonded indebtedness and the running expenses of the old or gravity system.

For the present the direct cost of supplying St. Anthony Hill will be greater than the receipts from that locality. It is expected, however, that soon the receipts from the low and high systems together, at the present rates, will more than meet interest and current expenses, when a reduction will be made, and that thereafter decreased prices, from time to time, will follow an increasing consumption.

One year ago this Board reported that the work on the new supply was rapidly progressing, and promised the completion of the same by the first day of December, 1884. To-morrow we expect water will be pumped onto St. Anthony Hill.

To the people of Dayton's Bluff a better promise is now made, in that they will doubtless have their water supply earlier in the coming season.

The honesty, industry and efficiency, in their several departments, of the gentlemen whose names are affixed to the reports herewith, the members of this Board are pleased to acknowledge.

Respectfully submitted,
J. F. HOYT,
P. H. KELLY,
C. W. GRIGGS,
C. D. O'BRIEN,
C. D. GILFILLAN,
Commissioners.

SECRETARY'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
December 1, 1884.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—I respectfully submit to your Honorable Board my third annual report, with accompanying statements showing in detail, under appropriate heads, the financial operations of the Water Department for the year ending November 30, 1884, the total receipts and disbursements during same term, new consumers added, balances uncollected, abstract of monthly receipts and disbursements, trial balance, list of vouchers paid, and the estimated revenue for the year ending November 30, 1885.

I have also prepared statements showing total receipts and disbursements from August 10, 1882, when the city purchased the Works, to December 1, 1884, and a statement of all contracts made by the Board during same time, with the amount paid and balances due on same.

REVENUE.

The total amount received by the Water Department for the year is...	$893,935.82
Amount on hand December 1, 1883	17,546.48
Total	911,482.30
Total disbursements	909,902,70
Leaving a balance of	$ 1,579.60

Of the receipts, $619,244.39 was derived from the sale of $600,000 of bonds, $165,000 from temporary loans made, leaving $109,691.43 from all other sources.

The general water receipts, semi-annual and metered, were $82,259.63, an increase of $15,860.31 over former year.

The miscellaneous water receipts, from builders, water carts, flushing sewers, filling cisterns and sprinkling streets, were $12,981.47, an increase of $2,508.49. Repair account is credited with $46.06, collected from the city for damages caused mains by contractors. Extension account is credited with $1,236.47, derived from sale of rock excavated from main trenches, scrap iron and amount unclaimed on pay rolls for the year.

Construction account is credited with $213.18, $11 being rebate on freight paid, $12 from sale of material at Little Canada and $189.18 retained and unclaimed on pay rolls for year.

I estimate the water receipts for year ending December 1, 1885, at $100,000.

INTEREST, REPAIRS AND MAINTENANCE.

$50,337.33 has been paid on account of interest on bonds and temporary loans; $2,538.03 on account of repairs on mains, hydrants and valves, caused principally by changing of grades of streets and widening of sidewalks; $11,473.84 on account of general maintenance, which includes salaries, office expenses, fuel, stationery and stable expenses. There has been $990.42 expended on account of meters; $157,189.31 on account of city extensions, and $609.686.93 on construction account (new supply). This latter includes $174,985.58, paid for 20, 24 and 30 inch cast iron pipe and special castings.

RECEIPTS AND DISBURSEMENTS FROM AUGUST 10, 1882, TO DECEMBER 1, 1884.

RECEIPTS.

General water receipts	$ 153,627.83
Miscellaneous receipts	26,023.07
Connections (services)	23,515.20
Shutting off and turning on water	161.00
Repairs	1,003.19
Extensions	7,188.77
Bills payable	293,000.00
Construction	616.33
Bonds sold	750,000.00
Interest	19,244.39
Total	$1,274,379.77

DISBURSEMENTS.

General maintenance	$ 20,002.72	
Connection (services)	25,470.93	
Repairs	4,561.50	
Meter	2,278.91	
Extensions (city)	230,493.72	
Construction (new supply)	711,274.92	
Interest	85,717.47	
Bills payable	193,000.00	
		$1,272,800.17
Balance		$ 1,579.60

Construction account includes the cost of 20, 24 and 30 inch cast iron pipe and special castings, amounting to	$ 174,985.58
Right of way, including settlement of mill suits, purchase of lands for right of way, reservoirs, attorneys' fees, abstracts, recording papers, etc	46,481.65
Engineering and salary of right of way attorney	22,738.34
Paid pay rolls and contractors	378,842.01
Tools and repairing same	4,197.59
Material purchased	64,714.40
Freight	9,334.74
Miscellaneous and building	9,980.61
Total	$ 711,274,92

(Included in the amount paid on pay rolls and contractors is $25,616.85 paid contractors for grading right of way, and $945.45 for grading done by the Board.)

All pipe laying and considerable portions of the conduit have been done by the Board, and the amount of money paid by me on pay rolls since August 10, 1882, has been as follows:

On city pay rolls	$ 124,695.33
On country pay rolls	78,845.13
Total	$ 203,540.46

The largest number of men employed any one month was 542. The average monthly number since the City purchased the works has been 207.

CONTRACTS.

The contracts made by the board to date amount to	$ 728,962.25
On which has been paid	671,654 43
Leaving balance due	$ 57,307.82

BONDED DEBT.

The bonded debt of the city for Water Works purposes has been increased during the year by the issue of $600,000 of 5 per cent. bonds.

The present bonded debt is $1,260,000.00
This includes the $160,000 of Water Company's bonds assumed by the city.
The total annual interest on the bonds is $64,300.00

For details of receipts and disbursements see accompanying statements.

FRONTAGE TAX.

The first frontage tax assessment has been made, and is now in the hands of the county treasurer for collection, amounting to $12,852.76.

SERVICES.

During the past year 500 applications have been made for service pipes, of which 336 are on the low service and 164 on high service. This is an increase of 199 over the former year. The total number of applications to date is 2,931, an increase of 919 since the city bought the works.

METERS.

There are in use 144 meters. The receipts derived from this source for the year were $26,720.51, an increase over former year of $3,865.52. The increase on meter accounts cannot be estimated with the same accuracy as the assessed accounts, as they are affected according to the amount of business done.

SHUTTING OFF AND TURNING ON.

For the year—	
Shut off for repairs	123
Shut off for non-payment	169
Shut off, premises vacant	79
Shut off for violation of rules	13
Total	384
Total turned on	630
Total turned on and shut off	1014

INSPECTION.

One inspector is employed, whose duty is to examine all work done by the plumbers, to see if the rules are complied with. During the year 718 permits were issued to plumbers, which, when reported by them, required the personal examination of the premises by the inspector. When not otherwise engaged, he is employed in inspecting premises where water is used, to discover leaks and improper and unauthorized use of water.

CONCLUSION.

The duties of this department have increased very much the past year, owing to the vast amount of extensions of city mains, construction of conduit, pumping station, etc., for new supply, and the increased number of water takers, and I am pleased to report that the work has been accomplished without any additional clerical help. It has always been the aim of the officials to treat water takers, and all persons having business with the office, with courtesy and impartiality.

I desire to return my thanks to the members of the Board, the Superintendent and Engineer, for uniform kindness and assistance rendered me in the performance of my duties, and to the employees for the prompt and satisfactory manner with which they have performed their several duties.

Respectfully submitted,
JOHN CAULFIELD,
Secretary.

RECEIPTS AND DISBURSEMENTS FROM DEC. 1, 1883, TO DEC. 1, 1884.

Dec. 1, 1883, To balance			$ 17,546.48
General Water Receipts—			
Semi-annual	55,539.12		
Metered	26,720.51		
		82,259 63	
Miscellaneous Water Receipts—			
Builders	2,479.33		
Water carts	717 35		
Flushing sewers, etc	255.05		
Filling cisterns	3,032 98		
Sprinkling str ets	6,496.76		
		12,981.47	
Connections, putting in service pipes		12,827.62	
Shutting off and turning on water		127.00	
Repair		46.06	
Extension		1,236 47	
Bills payable		165,000.00	
Construction		213.18	
Bonds sold		600,000 00	
Interest		19,244 39	
			893,935.82
Total			$911,482 30

DISBURSEMENTS.

General Maintenance Account—				
Salaries		8,773.67		
Stationery and printing		521.39		
Miscellaneous		322.15		
Labor		1,099.61		
Material		314.47		
Stable { Feed		264.55		
Stable { Repairs		178.00		
			11,473.84	
Connection Account (service pipe).				
Labor		7,344.83		
Lead pipe		3,306.83		
Brass goods and stop boxes		1,848.50		
Tools and miscellaneous		186.68		
			12,686.84	
Repair Account—				
Hydrants { Labor	1,611.68			
Hydrants { Material	169.86			
		1,781.54		
Valves { Labor	16.50			
Valves { Material	12.09			
		28.59		
Mains { Labor	708.80			
Mains { Material	19.10			
		727.90		
			2,538.03	
Meter Account—				
Labor		41.10		
Meters and freight		949.32		
			990.42	
Extension Account—				
Pipe and special castings		54,813.89		
Labor		63,434.64		
Tools and repairs of same		2,292.22		
Advertising		11.00		
Fire hydrants		6,500.00		
Valves		16,063.21		
Lead and hemp packing		11,588.71		
Lumber and material		2,173.86		
Miscellaneous		311.78		
			157,189.31	
Construction Account (new supply).				
Pipe and special castings		174,985.58		
Labor and contracts		341,918.22		
Tools and repairs of same		1,966.68		
Lumber and material		41,164.20		
Freight		5,916.00		
Engineering and right of way		42,013.66		
Miscellaneous and building account		1,722.59		
			609,686.93	
Interest account			50,337.38	
Bills payable			65,000.00	
Total Disbursements				909,902.70
Balance				1,579.60
Of which there is in the city treasury		244.22		
And on hand		1,335.38		

TRIAL BALANCE, DECEMBER 1, 1884.

St. Paul water works	$ 510,000.00	
Bond account		$1,260,000.00
General water receipts		153,627.83
Miscellaneous water receipts		26,023.07
Connection account	1,956.48	
Extension account	223,064.98	
General Maintenance account	20,028.97	
Repair account	3,558.47	
Meter account	2,278.91	
Construction account, new supply	710,871.41	
Interest account	66.473.08	
Geo. Reis, City Treasurer	244.22	
Shutting off and turning on		161.00
Bills payable		100,000.00
Cash on hand	1,335.38	
	$1,539,811.90	$1,539,811.90

RECEIPTS AND DISBURSEMENTS FROM AUGUST 10, 1882, TO DECEMBER 1, 1884.

General Water Receipts—			
Semi-annual	$ 99,753.32		
Metered	53,874.51		
		153,627.83	
Miscellaneous Water Receipts—			
Builders	4,585.98		
Water carts	1,547.03		
Flushing sewers, etc	527.15		
Filling cisterns	5,893.00		
Sprinkling streets	13,469.91		
		26,023.07	
Connections		23,515.20	
Shutting off and turning on water		161.00	
Repair		1,003.18	
Extension		7,188.77	
Bills payable		293,000.00	
Construction		616.33	
Bonds sold		750,000.00	
Interest		19,244.39	
Total receipts			$1,274,379.77

CONSTRUCTION—NEW SUPPLY.

	s and irs of me.	Lumber and Material.	Freight.	Engineering and Right of Way.	Miscel. and Building Account.	Interest.	Bills Payable.
6	145.88	7,767.97	1,701.45	3,072.08	212.45	.....	.....
7	184.82	3,593.88	351.00	4,128.01	530.55	10,199.70	.....
8	160.02	2,671.95	.....	2,825.96	14.68	.....	.....
9	226 30	3,923 28	105.00	1,016.82	54 07	200.00	10,000.00
9	200.84	4,202.18	287.00	9,406 80	11.55	657.78	55,000.00
10	437.91	3 146.97	219.75	4,045.01	31.73	7,017.50	.....
11	145 16	3,271.37	466.25	4,547.13	30.42	6,448.00	.....
11	142.58	1,197 45	363.05	6,847.33	25.35	3,759.35	.....
12	138.64	4,640.13	1,073.00	1,597.60	13.14	.....	.....
13	72 28	4,850.54	1,174.50	1,509.59	234.40	15,037.50	.....
14	8.15	951.36	175.00	1,507.95	557.25	.....	.....
15	104.10	947 12	.....	1,509.38	7 00	7,017.50	.....
	966 68	41,164.20	5,916.00	42,013.66	1,722.59	50,337.33	65,000.00

NG NOVEMBER 30, 1884.

WATER RECEIPTS.			Connec-tions.	Shutti'g off and Turning on water	Repair.	Exten-sion.	Bills Payable.	Total Receipts.
i'g ers.	Filling Cisterns.	Street Sprinklers						
.50	409.07	146.03	464.35	.....	.....	28.38	10,000.00	17,635.99
.40	597.58	46.42	307.10	25.00	.....	.....	10,000.00	28,089.93
.00	594.50	98.30	176.70	27.00	.....	.....	10,000.00	13,500.57
...	421.42	12.83	102.13	5 00	.....	7.00	20,000.00	23,228.06
.00	331.70	3.90	560.96	4.00	10.88	40.00	15,000.00	334,559.89
.00	140.25	656 09	1,256.97	1.00	.....	166.00	.....	314,918.27
.00	55.68	831.51	1,043 16	13.00	.....	65.00	.....	6,647 02
...	57.41	1,230.84	1,474.68	25.00	.....	126.51	..... .	23,063.10
.50	78.92	1,091.77	1,198.85	21.00	.....	207.19	.....	13,086.32
.00	47.00	977.89	1,924.40	4.00	.....	183.20	.....	6,792.31
.65	77.13	910 36	2,792.50	2.00	.....	98.38	50,000.00	56,874.73
.00	222.32	490.82	1,525.82	.....	35.18	314 81	50,000.00	55,539.63
.05	3,032.98	6,496.76	12,827.62	127.00	46.06	1,236.47	165,000.00	$ 893,935.82

882, TO DECEMBER 1, 1884.

.00	342.01	1,327.00	2,811.27	4.00	123 39	65.59	17,000.00	27,541.75
.10	2,518.01	5,646.15	7,876.31	30 00	833.73	5,886.71	111,000.00	352.902.20
.05	3,032 98	6,496 76	12,827.62	127.00	46.06	1,236.47	165,000.00	893,935.82
.15	5,893.00	13,469 91	23,515.20	161.00	1,003.18	7,188 77	293,000.00	$1,274,379.77

CR 1, 1884.

INTEREST PAYABLE.							Annual Interest.
Jan. 10.	Feb. 1.	April 1.	June 1.	July 10.	Aug. 1.	Oct. 1.	
6,400.00	.....	.....	.....	6,400.00	.....	.....	12,800 00
.....	.....	.....	7,000.00	.....	.....	.....	14,000.00
.....	3,750.00	.....	.....	.....	3,750.00	.....	7,500.00
.....	.....	15,000.00	.....	.....	.....	15,000.00	30,000.00
6,400.00	3,750.00	15,000.00	7,000.00	6,400.00	3,750.00	15,000.00	$64,300.00

DISBURSEMENTS.

General Maintenance—				
Salaries		$13,346.77		
Stationery and printing		1,319.42		
Miscellaneous		859.39		
Labor		3,294.16		
Material		378.19		
Stable { Feed		488.49		
Stable { Repairs		316.30		
			20,002.72	
Connection Account—				
Labor		14,162.28		
Pipe		6,692.64		
Brass goods and stop boxes		3,731.95		
Tools and miscellaneous		884.06		
			25,470.93	
Repair—				
Hydrants { Labor	2,239.87			
Hydrants { Material	192.81			
		2,432.68		
Valves { Labor	34.63			
Valves { Material	38.18			
		72.81		
Mains { Labor	1,995.30			
Mains { Material	60.71			
		2,056.01		
			4,561.50	
Meter—				
Labor		96.60		
Meters and freight		2,182.31		
			2,278.91	
Extension Account—				
Pipe and special castings		89,681.30		
Labor		87,320.33		
Tools and repairs of same		3,361.55		
Advertising		26.90		
Fire hydrants		11,774.00		
Valves		20,265.48		
Lead and hemp packing		13,231.88		
Lumber and material		2,586.96		
Miscellaneous		2,245.32		
			230,493.72	
Construction Account (new supply)—				
Pipe and special castings		174,985.58		
Labor and contracts		378,842.01		
Tools and repairs of same		4,197.59		
Lumber and material		64,714.40		
Freight		9,334.74		
Engineering and right of way		69,219.99		
Miscellaneous and building account		9,980.61		
			711,274.92	
Interest			85,717.47	
Bills payable			193,000.00	
Total disbursements				1,272,800.17
Balance				1,579 60

The following statement shows the amount due the water board on December 1884:

Application.			
	By the City of St. Paul—		
715	Rice Park fountain, to January 1, 1884.....	$ 138.80	
	to January 1, 1885.....	100.00	
379	City Hall Building, to January 1, 1884.....	48.50	
	to January 1, 1885.....	17.50	
380	City offices, (Baldwin School), to January 1, 1884.....	41.75	
	City offices (Baldwin School), to January 1, 1885.....	15.00	
1026	Irvine Park fountain, to January 1, 1884.....	138.80	
	to January 1, 1885.....	100.00	
	Exchange Street Park fountain, at $100 per year, from August 26, 1884, to January 1, 1885.....	33.33	
114	Market House, from July, 1883, to April 1, 1884, at $150 per year.....	112.50	
	Market House, meter rate, from April, 1884, to November 30, 1884.....	99.70	
	Water for public purposes, 6 months, to December 1, 1884.....	7,942.65	
	Repairing main, Lafayette avenue, caused by sewer contractor.....	12.56	
	Repairing gate, Box E 7th Street, caused by pavement contractor.....	5 25	
	Repairing main on Westminster, caused by sewer contractor.....	1.75	
	Water for flushing Fifth Ward sewers, retained from contractor's estimate.....	170.00	
	Repairing main on Robert street, between Third and Fourth, caused by settling of service sewer.....	54.86	
	Expense changing hydrant, Third and Rosabel.....	14.75	
	Expense changing hydrant, Third and Wabasha.....	28.90	
	Repairing main on Pearl street, caused by settling of service sewer.....	20.21	
	Water for flushing sewers.....	39.00	
			9,135.[illegible]
	From Board of Fire Commissioners—		
1221	No. 4 Engine House, to July 1, 1884.....	59.15	
	to January 1, 1885.....	15.75	
303	No. 1 Engine House, to July 1, 1884.....	64 00	
	to January 1, 1885.....	17.00	
259	No. 2 Engine House, to July 1, 1884.....	37.70	
	to January 1, 1885.....	10.00	
1243	No. 3 Engine House, to July 1, 1884.....	49.40	
	to January 1, 1885.....	13.25	
2410	Department Headquarters, December 18, 1883, to July 1, 1884.....	34.00	
	Department Headquarters, July 1, 1884, to January 1, 1885.....	32.25	
			332.[illegible]
	Frontage tax assessment for year 1884.....		12,852.[illegible]
	From builders.....		300.[illegible]
	From service connections.....		1,400.[illegible]
			24,353.[illegible]

Statement showing the amount paid the City Treasurer and warrants drawn against same from Dec. 1, 1883, to Dec. 1, 1884.

1883				
Dec. 1	Balance in treasury as per last report			$13,602.53
Dec. 5	Cash	5,000.00		
Dec. 11	Cash	10,000.00		
Dec. 17	Cash	1,000.00		
			16,000.00	
1884				
Jan. 2	Cash	4,000.00		
Jan. 5	Cash	10,000.00		
Jan. 12	Cash	8,000.00		
Jan. 28	Cash	10,000.00		
			32,000.00	
Feb. 4	Cash	2,500.00		
Feb. 13	Cash	10,000.00		
			12,500.00	
March 1	Cash	2,000.00		
March 10	Cash	22,000.00		
			24,000.00	
April 3	Cash	15,000.00		
April 8	Cash	3,500.00		
April 15	Cash	500 00		
April 22	Cash	6,500.00		
April 30	Cash	309,372.18		
			334,872.18	
May 13	Cash	309,872.21		
May 15	Cash	3,000.00		
May 31	Cash	500.00		
			313,372.21	
June 27	Cash		5,000.00	
July 26	Cash		25,000.00	
Aug. 28	Cash		13,000.00	
Sept. 30	Cash		5,000.00	
Oct. 8	Cash	50,000.00		
Oct. 16	Cash	4,000.00		
			54,000.00	
Nov. 1	Cash	7,500.00		
Nov. 7	Cash	25,000.00		
Nov. 22	Cash	25,000.00		
Nov. 24	Cash	4,300.00		
			61,800.00	
				896,544.39
				$910,146.92

1883	Warrants drawn Against Same.			
Dec. 1	Warrants Nos. 646 to 668 inclusive	$ 8,145.35		
Dec. 5	" " 669	8,141.50		
Dec. 11	" " 670 to 722 "	13,131.97		
			$ 29,418.82	
1884				
Jan. 2	" " 723 to 725 "	9,655.67		
Jan. 10	" " 726	4,487.18		
Jan. 15	" " 727 to 810 "	13,272.74		
Jan. 28	" " 811 to 816 "	1,058.88		
			28,474.47	
Feb. 1	" " 817	3,227.21		
Feb. 4	" " 818	3,574 55		
Feb. 13	" " 819 to 881 "	8,068.37		
			14,870.13	
March 1	" " 882	3,145.82		
March 10	" " 883 to 940 "	21,994.07		
March 15	" " 941	50 00		
March 19	" " 942	93.60		
			25,283.49	
April 1	" " 943	3,614.81		
April 3	" " 944 to 980 "	6,605.42		
April 5	" " 981 to 997 "	10,143 59		
April 12	" " 998 to 1,004 "	787.70		
April 21	" " 1,005 to 1,008 "	6,453.07		
April 22	" " 1,009 to 1,013 "	64,945.13		
			92,549.72	
May 3	" " 1,014 to 1,044 "	93,741.40		
May 5	" " 1,045	4,243.66		
May 8	" " 1,046 to 1,092 "	50,419.80		
May 20	" " 1,093 to 1,099 "	5,805.99		
			154,210.85	
June 2	" " 1,100 to 1,111 "	30,602.15		
June 4	" " 1,112 to 1,145 "	35,913.35		
June 6	" " 1,146	7,313.75		
June 10	" " 1,147 to 1,185 "	33,517.04		
			107,346.29	
July 2	" " 1,186 to 1,212 "	23,886 18		
July 7	" " 1,213 to 1,214 "	16,612.90		
July 9	" " 1,215 to 1,264 "	62,801.67		
July 17	" " 1,265 to 1,271 "	5,533.17		
July 26	" " 1,272 to 1,276 "	3,842.00		
			112,675.92	
Aug. 2	" " 1,277 to 1,320 "	37,697.79		
Aug. 8	" " 1,321 to 1,358 "	53,635.81		
Aug. 12	" " 1,359 to 1,366 "	573.66		
Aug. 22	" " 1,367 to 1,377 "	15,592 83		
			107,500.09	
Sept. 3	" " 1,378 to 1,414 "	40,875.87		
Sept. 10	" " 1,415 to 1,452 "	56,460.07		
Sept. 23	" " 1.453 to 1,458 "	601.18		
			97,937.12	
Oct. 2	" " 1,459 to 1,460 "	14,343 41		
Oct. 8	" " 1,461 to 1,512 "	57,004.55		
Oct. 16	" " 1,513 to 1,519 "	6,911.70		
			78,259.66	
Nov. 1	" " 1,520 to 1,521 "	9,209.51		
Nov. 7	" " 1,522 to 1,564 "	13,018 28		
Nov. 14	" " 1,565 to 1,575 "	7,554.84		
Nov. 22	" " 1,576 to 1,581 "	7,912.10		
Nov. 24	" " 1,582 to 1,584 "	23,681.41		
			61,376.14	
				909,902.
	Balance in City Treasury....			244.

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS FROM AUGUST 8, 1882, TO DECEMBER 1, 1884.

Date of Contract.	With whom and for what purpose.	Amount of Contract.	Amount Paid.	Amount Due.
1882.				
Aug. 8	R. D. Wood & Co., Philadelphia, Pa., hydrants	1,033.95	1,033.95	
Aug. 8	Shickle, Harrison & Howard Iron Co., St. Louis, cast iron pipe and specials	7,548.04	7,548.04	
Dec 27	R D. Wood & Co., Philadelphia, Pa., hydrants	3,802.67	3,802.67	
1883.				
Feb 10	Boston Machine Co., Boston, Mass., valves	2,601 85	2,601.85	
April 19	Taylor & Craig, St. Paul, constructing office building	5,792.00	5,792.00	
Feb 10.	Dennis Long & Co., Louisville, Ky., cast iron pipe and specials	28,464.81	28,464.81	
March 15	Bingham & Morgan, Buffalo, N.Y., valve and stop cock boxes	1,615.89	1,615.89	
July 16	St. Louis & St. Paul Packet Co., St. Paul, cement	2,605.00	2,605.00	
July 12	Northwestern Manufg. & Car Co., Stillwater, Minn., 2 10-horse-power engines	993.60	993 60	
Sept. 26	Prendergast Bros., St. Paul, furnace	500.00	500.00	
July 2	Morton & Terry, St. Paul, excavation for conduit from Centerville road to Vadnais Lake	35,476.99	35,476.99	
July 2	E. W. Bazille, St. Paul, brick	2,526 05	2,526.05	
Sept. 1	Northwestern Manufg. & Car Co., Stillwater, Minn., brick	9,262.50	9,262.50	
Sept. 7	Ryan & Wallace, St. Paul, plastering conduit	788.75	788.75	
Nov. 7	David Swank, St. Paul, grading along Sandy Lake	5,313.60	5,313 60	
Dec. 13	J. C. Geary, St. Paul, drayage, 20, 24 and 30-inch pipe and specials	7,544.48	7,544.48	
Dec. 26	Wm. Stockton, St. Paul, tunneling	535.50	535.50	
Dec. 8.	R. D. Wood & Co., Philadelphia, Pa., hydrants	6,559.00	6,559.00	
Nov. 7.	Shickle, Harrison & Howard Iron Co., St. Louis, Mo., 20, 24 and 30-inch cast iron pipe and specials	174,740.40	174,740.40	
1884.				
Jan. 6	Shickle, Harrison & Howard Iron Co., St. Louis, Mo., 4, 6, 12 and 16-in. cast iron pipe and specials	53,595 91	53,595.91	
Jan. 7	Thomas Ryan, St. Paul, laying brick conduit in tunnel	1,100.75	1,100.75	
Jan. 17	F. J. O'Brien, St. Paul, tunneling	1,341.60	1,341.60	
Jan. 21	Con. Casey, St. Paul, drayage 4, 6, 12 and 16-inch pipe, hydrants, etc	1,494.96	1,494.96	
Jan. 2	Bingham & Morgan, Buffalo, N. Y., valve and stop cock boxes	2,875 25	2,875.25	
Jan 2	Boston Machine Co., Boston, Mass., valves	13,573 54	13,573.54	
Jan. 15	Vine D. Simar, St. Paul, grading Miss. st. right of way, low service	20,635.49	20,635.49	
Jan. 22	Vine D. Simar, St. Paul, gate chamber at Vadnais Lake	3,044.54	3,044.54	
April 21	Vine D. Simar, St. Paul, grading along McCarron's Lake, and Dale st, high service	3,648.15	3,648.15	
April 25	Vine D. Simar, St. Paul, grading Mississippi street at railroad bridge	1,333.21	1,333.21	
Feb. 20	Butts & Gregory, Stillwater, stone	2,187.19	2,187.19	
Feb. 20	J. M. Cooley, St. Paul, caisson at Vadnais Lake	846.00	846.00	

March 5	Geo. W. Sherwood, St. Paul, piling for high service	950.98	950.98	
Feb. 19	H. P. Rugg & Co., St. Paul, pig lead and hemp packing	11,283.60	11,283.60	
March 26	H. P. Rugg & Co., St. Paul, lead pipe	1,181.85	1,181.85	
March 26	E. P. Allis & Co., Milwaukee, Wis., engines and boilers	28,000.00		28,000.00
April 15	W. S. Morton, St. Paul, constructing section 5 of conduit	89,605.73	89,605.73	
April 15	Hough & Gear, Buffalo, N.Y., constructing sections 1 and 2 of conduit	62,107.57	44,179.88	17,927.69
April 25	Stevens & Elmer, St. Paul, constructing sections 3 and 4 of conduit	60,897.35	60,897.35	
May 28	Hough & Gear, Buffalo, N. Y., terminal chamber and waste weirs, A. and B	9,795.24	7,589.11	2,206.13
May23	H. R. De Laplain, St. Paul, piling along Mississippi street right of way, low service	4,022.15	4,022.15	
May 7	Erie Telephone Co., St. Paul, constructing telephone line	573.35	573 35	
June 5	J. J. Palmer, St. Paul, foundations pumping station and smoke stack	9,732.08	9,732.08	
July 28	J. J Palmer, St. Paul, superstructure pumping station, smoke stack, terminal chamber and waste weirs	25,389.00	18,105.00	7,284.00
July 24	Stevens & Elmer, St. Paul, piling on section 3 of conduit	1,095.80	1,095.80	
Jly 2, '83 Mh 19'84 May 6'84	Sanders & Mathews, St. Paul, cement.	9,500.13	9,500.13	
July 23	Herzog Manufacturing Company, Minneapolis, iron truss roof for pumping station	3,750.00	3,650.00	100.00
Aug 14	J. Lyman Rood, St. Paul, dwelling houses at pumping station and Vadnais Lake	7,400.00	5.610.00	1,790.00
Sep 23	Adams, Rothwell & Co., St. Paul, manhole covers for conduit	295.75	295.75	
		728,962.25	671.654.43	57,307.82

LIST OF VOUCHERS PAID

From December 1, 1883 to December 1, 1884.

DECEMBER, 1883.

No. of Voucher.	Name and Claim.	Amount.
646	John Caulfield, secretary, St. Paul, city pay roll for November, 1883	3,995 18
647	Dennis Long & Co, Louisville, Ky, iron pipe	1,030 63
648	Griggs & Foster, St Paul, wood and coal for September and October	461 89
649	Register of Deeds, St Paul, recording deeds, etc	15 75
650	Bingham & Morgan, Buffalo, N Y, cast iron gate boxes	95 10
651	National Meter Co, Buffalo, N Y, 2 1 inch, 3 1½ inch and 2 2 inch Crown meters	382 50
652	John Caulfield, secretary, St Paul, money advanced for freight, etc	50 22
653	I V D Heard, St Paul, right of way in section 8	180 00
654	I M Dean, St Paul, right of way damages	50 00
655	De Coster & Clark, St Paul, office furniture	110 00
656	James J Dunnigan, St Paul, 161 lbs inch lead pipe, at 7c	11 27
657	George Mitsch, St Paul, blacksmithing	40 20
658	J M Warner, St Paul, 1 tarpaulin	11 00
659	Tusler, De Long & Co, St Paul, repairs	4 75
660	Lains & Judd, St Paul, 1 desk for office Little Canada	4 25

661	John Martin & Co, St Paul, lumber	55 86
662	Capitol Iron Works, St Paul, repairs to pumps	13 30
663	Millston Lumber Co, St Paul, lumber	608 69
664	Schliek & Co, St Paul, 6 prs rubber boots	19 50
665	Geo D Exley, St Paul, drayage	23 26
666	Sanders & Matthews, St Paul, 100 bbls Milwaukee cement, at $1.20, 500 bbls Louisville cement, at $1.40	820 00
667	St Louis & St Paul Packet Co, St Paul, 100 bbls Louisville cement, at $1.35	135 00
668	Sanders & Matthews, St Paul, 18 bbls Louisville cement, at $1.50	27 00
669	John Caulfield, secretary, St Paul, pay roll for November, 1883, new line	8,141 50
670	S Nadeau, St. Paul, hauling 553,110 brick, 175 loads rock and other teaming	1,008 25
671	Farwell, Ozmun & Jackson, St Paul, tools and supplies	10 57
672	Frank Morand, St Paul, 1 stove, 202 lbs, at 4c per lb	8 08
673	W L Nichols, St Paul, livery	6 00
674	St Paul Gas Light Co, St Paul, gas bill for November, 1883	4 15
675	St Paul Book & Stationery Co, St Paul, stationery for office and engineer	29 97
676	Corlies, Chapman & Drake, St Paul, sash and glazing	4 00
677	Pollock, Donaldson & Ogden, St Paul, lanterns and globes	3 07
678	Wm R Burkhard, St Paul, powder and fuse	21 20
679	Menk Bros,, St Paul, oats and bran	7 41
680	J De Graw & Sons, St Paul, lumber	3 36
681	P H Kelly Mer Co, St Paul, powder	79 90
682	Pioneer Press Co, St Paul, printing	24 00
683	Pioneer Press Co, St Paul, subscription	6 00
684	American Manfg Co, St Paul, repairing meter	90
685	Duggan Bros, St Paul, blacksmithing	64 45
686	Slater & Riley, St Paul, horse shoeing	9 25
687	Northern Pacific R R Co, St Paul, freight on brick	35 40
688	A Lannoux, St Paul, rent of office and supplies, Little Canada	19 68
689	Burnham & Jones, St Paul, 204 ft 4 inch sewer pipe	20 40
690	Geo J Mitsch & Co, St Paul, gasoline, etc	3 85
691	Breuer & Rhodes, St Paul, nails and cast steel	22 04
692	Vetal Guerin, St Paul, blacksmithing at Little Canada	6 05
693	John Dowlan, 218 blasting timbers	76 30
694	Robinson & Cary, tools	53 96
695	Elmer & Newell, changing map lettering	2 50
696	J P Gribben, lumber	36 01
697	Ranney & Hodgman, rubber boots	12.50
698	W F Bailey, brass goods	103 50
699	Griggs & Foster, coal and wood	118 22
700	Peter Kerst, blacksmithing	107 40
701	Wilson & Rogers, stone pipe, pig lead, etc	182 47
702	H P Rugg & Co, stone pipe, lead pipe, etc	478 94
703	St Paul & Duluth R R, freight on brick, stone, etc	1,610 85
704	Northwestern Mfg & Car Co, Stillwater, 91 M brick at 9.00 and 6 cars brick bats	993 00
705	Gregg & Griswold, Chaska, 255 M brick at 8.50, at Chaska	2,167 50
706	Lucien Warner, St Paul, 126 M brick at 8.50, at Chaska	1,071 00
707	Wm Schwartz, Brainerd, 44 M brick, at 7.50, at Brainerd	333 00
708	David Swank, St Paul, estimate No 1, excavation	567 19
709	Thos Holmden, St Paul, W D, lot 8, S 30, T 30, R 22	660 00
710	Catherine Hill, W D, N ⅓ of S W ¼, S 18, T 29, R 22	520 00
711	Theo Parker, attorney, salary for November, 1883	75 00
712	K P Cullen, livery	14 00
713	Morton & Terry, lumber, labor and teaming	99 55
714	Harrington & McGovern, gas fixtures and gas fitting	46 20
715	Jadock Kohler, warranty deed of S W ¼, S 18, T 29, R 22	600 00
716	John Caulfield, secretary, advances for freight, etc	30 65
717	Andrew Riedele, Chaska, 56,500 brick at 8.50, at Chaska	480 25
718	Morton & Terry, estimate No 5, excavation	1,020 00

719	E W Bazille, 100 yds brick bats	250 00
720	Dr H F Hoyt, professional services	15 00
721	Wm Dinwoodie, " "	4 00
722	Geo Bowers, burying carcasses	5 00
		$29,418 82

JANUARY, 1884.

723	John Caulfield, secretary, city pay roll for December, 1883	3,090 67
724	George Reis, City Treasurer, interest and commissions, January interest	6,440 00
725	Antoine Lannoux, right of way deed, sec 6	125 00
726	John Caulfield, new line, pay roll for December, 1883	4,487 18
727	Pioneer Press Co, printing and advertising	32 85
728	Daily Globe, printing and advertising	73 75
729	Prendergast Bros, No 158 furnace, etc	506 30
730	Taylor & Craig, carpenter work	57 90
731	Clerk of District Court, certified copy of papers,	11 50
732	Nicols & Dean, chain	14 80
733	Griggs & Foster, coal and wood	134 44
734	Geo Mitsch, blacksmithing	9 50
735	H P Rugg & Co, pipe fittings	3 74
736	Farwell, Ozmun & Jackson, tools	4 96
737	Duggan Bros, blacksmithing	46 10
738	Breuer & Rhodes, 41½ lbs cast steel at 12½c	5 18
739	Geo J Mitsch & Co, gasoline, etc	1 70
740	P H Kelly Mer Co, powder, fuse, oil, etc	80 49
741	Slater & Riley, horseshoeing	4 00
742	Geo Benz, 1 bbl	1 50
743	Michael Coyne, inspectors' railroad fare	6 00
744	McCarthy & Donnelly, 2 bottles ink	2 00
745	St Paul Gas Light Co, gas	7 15
746	Northern Pacific R R Co, freight on brick	38 00
747	Menk Bros, oats	7 61
748	Robinson & Cary, tools, etc	38 18
749	John Martin & Co, lumber	5 00
750	St Paul Book and Sta Co, stationery	8 26
751	A Lanoux, rent of office Little Canada and supplies	17 52
752	O P Peterson, 25 lbs tallow at 6c	1 50
753	Fernald & Wheeler, 2 stools for engineer	2 00
454	M A Bigford & Co, changing vault combination for engineer	1 00
755	Pollock, Donaldson & Ogden, lanterns	3 35
756	K P Cullen, livery	3 00
757	J S Burris, 5 M sewer brick	52 50
758	J H Schurmeier. 1 jumper, use of superintendent	33 00
759	C C Miles, 2 office keys	80
760	Averill, Russell & Carpenter, tar paper	17 50
761	Capitol Iron Works, engine repairs	18 95
762	J P Gribben, lumber	159 14
763	Sanders & Matthews, 100 bbls Louisville cement, new line, 18 bbls Louisville cement, city	170 00
764	D Swank, estimate No 2, Sandy Lake excavation	939 35
765	D Swank, men and teams furnished the board	27 11
766	Thos Ryan, est No 1, conduit construction	273 70
767	Lucien Warner, 22 M brick, at Chaska, at 8.50	187 00
738	Northwestern Manufacturing & Car Co, Stillwater, 84 M brick at 9.00	756 00
769	M M Williams, 49,200 brick, at 8.50, less freight	247 90
770	Andrew Riedle, Chaska, 112 M brick, at Chaska, at 8.50	952 00
771	Paul Millette, Little Canada, 3½ cords wood	12 00
772	J B Gervais, Little Canada, 41 20 ft piles, 820 feet piles	82 00
773	John Houle, Little Canada, 205 11-ft braces, 8c; 12 30-ft piles, 3c; 39 20-foot piles, 2c	130 40
774	Wm Houle, Little Canada, 2⅝ cords wood, 3.50	9 19

775	S Nadeau, Little Canada, hauling 198,482 brick at 1.20, and 15 loads cement at 75c, 50 8 ft braces, 8	253 42
776	Corlies, Chapman & Drake, 1 sash 9x14, 6 lights	90
777	C H Lienau, recording deeds	3 00
778	Die Volkszeitung, advertising	10 00
779	H A Castle, advertising	3 60
780	Kennedy & Chittenden, brooms, soap, etc	2 00
781	St Paul, M & M R R Co, freight on brick	34 00
782	Chic, St Paul, M & O R R Co, freight on lumber	4 00
783	Griggs Bros, 3 bales oat straw	1 80
784	Chas Friend, leather, etc	12 00
785	Wm R Burkhard, fuse	7 00
786	St Paul & Duluth R R Co, freight on 8 cars brick	142 00
787	Schliek & Co, 2 prs rubber boots	6 50
788	Adam Decker, lanterns, etc., for engineer	2 55
789	Frank Morand, 1 stove, 135 lbs, at 8c	10 80
790	Wilson & Rogers, iron pipe, fittings, etc	60 54
791	C, Mil & St Paul R R Co, freight on 12 cars brick	126 00
792	Gregg & Griswold, 24 150 brick at 10.00 per M, at St Paul	241 50
793	L N Dion, warranty deed 100 feet in S ⅓ of sec 18, T 29, R 22	700 00
794	Trick & Co, 1 drawing desk for engineer	51 50
795	Robert McMenemy, warranty deed 60 ft across lots 11, 12 and 13, Hoyt's Outlots	1,500 00
796	John Caulfield, secretary, money advanced for hay, postage, etc	20 25
797	Geo Exley, hauling 103,955 brick at 1.20 per M	124 74
798	S Nadeau, hauling 8 loads rock	10 00
799	John B Gervais, 47 20 ft piles	94 00
800	Mrs M Guerin, Little Canada, blacksmithing at Little Canada	15 10
801	Louis Peterson, Little Canada, 1½ cords oak wood	6 00
802	Chas Passavant, abstracts	26 10
803	E W Bazille, 66 yds brickbats and teaming	237 00
804	P Boeringer & Sons, repairing transit, Eng Department	91 00
805	W B Boyd, Little Canada, 105 cubic yds of sand at 75c	78 75
806	J Crilley, use steam derrick 26 days at 5.00	130 00
807	P Boeringer & Sons, 1 30-in steel straight edge	3 50
808	Peter Kerst, blacksmithing	94 55
809	Geo Reis, City Treasurer, interest on $150,000 water bonds, 6 months, to Feb 1, 1884	3,759 70
810	Folsom & Brunton, 18,012 ft lumber at 11.50	207 12
811	Wm Dawson, warranty deed 100 ft wide, lot 12 of Dawson's Outlots	400 00
812	James M Dean, warranty deed 100 ft wide, N W ¼ of S 18, T 29, R 22	85 00
813	R D Eggleston, refunded for repairs of service pipe	9 60
814	Wm Stockton, estimate No 1, tunnelling	450 28
815	Lucien Warner, 6 M bricks at 8.50, at Chaska	51 00
816	D L Curtice, 4 city maps	63 00
		$28,474 47

FEBRUARY, 1884.

817	John Caulfield, secretary, city pay roll for January, 1884	3,227 21
818	John Caulfield, secretary, country pay roll for January, 1884	3,574 55
819	C H Boardman, salary for November, December and January	25 00
820	C D Gilfillan, " " " "	25 00
821	C D O'Brien, " " " "	25 00
822	P H Kelly, " " " "	25 00
823	C W Griggs, " " " "	25 00
824	Register of Deeds, Ramsey county, recording deeds	13 95
825	Wm Freeman, blasting timbers	20 00
826	De Coster & Clark, desk for right of way attorney	51 50
827	Dennis Long & Co, Louisville, Ky, plugs	245 18
828	St. Paul Foundry & Mfg Co, man-holes, etc	32 03
829	Breuer & Rhodes, cast steel and nails	16 53

830	Northwestern Manufacturing & Car Co, Stillwater, brick, 39 M, at 9.00	351 00
831	H P Rugg & Co, oil can	60
832	Chas Passavant, abstract clerk, abstracts	8 20
833	Geo J Mitsch & Co, gasoline, oil, etc	2 70
834	Farwell, Ozmun & Jackson, wire, saws, etc	5 07
835	C C Miles, key and speaking tube	65
836	P H Kelly Mer Co, powder, fuse and candles	96 62
837	J De Graw & Sons, lumber	6 46
838	Wm R Burkhard, powder	2 40
839	Ranney & Hodgman, 6 ft tubing	75
840	K P Cullen, livery	3 00
841	St Paul Gas Light Co, gas for January	13 45
842	Wilson & Rogers, lead, hose and fix	5 48
843	Moeller, Pederson & Co, turning 4 derrick poles	4 75
844	John Martin & Co, 16 spruce poles at 1.50	24 00
845	Folsom & Brunton, lumber	341 01
846	Sanders & Matthews, cement	311 80
847	Menk Bros, oats	5 85
848	Vetal Guerin, blacksmithing	4 60
849	Paul Labore, blacksmithing	3 60
850	Peter Pepin, blacksmithing	2 65
851	A Lannoux, St Paul, rent of office and supplies	12 83
852	Trick & Co, St Paul, draw board, Engineer's department	8 35
853	Pollock, Donaldson & Ogden, St Paul, lanterns and wick	3 93
854	Robinson & Cary, St Paul, oil, rope and hemp packing	79 00
855	Mike Lieber, St Paul, 4 cords wood	12 00
856	Reo J Goiffon, Little Canada, 56 tamarac braces at 8c	4 48
857	Felix Labore, Little Canada, 80 roof stringers at 30c	24 00
858	J Crilley, St Paul, steam derrick 11½ days at $5 00	57 50
859	E W Bazille, St Paul, 120 cu. yards brick bats at $2 50	300 00
860	S Nadeau, St Paul, 91 20-ft piles, 3 30-ft piles and cord wood	221 82
861	Geo J Exley, St Paul, hauling 23 M brick to Sandy Lake	27 60
862	Thos Ryan, estimate No 2 bricklaying	248 41
863	F J O'Brien, estimate No 1 tunneling	187 00
864	Vine D Simar, estimate No 1, grading	128 86
865	J B Gervais, 6 30-ft piles, 17 20-ft piles	52 00
866	W B & E A Boyd, hauling 39,838 brick at $1; and 352 cubic yards sand, 75c	303 83
867	Jno Houle, 50 40-ft piles, 50 40-ft piles, 83 20-ft piles, 37 30-ft piles	677 00
868	D Swank, estimate No 3 excavation	462 95
869	Sherwood & Sutherland, piling 7,860 feet; labor $16.50	1,162 50
870	Griggs Bros, feed	7 32
871	Pioneer Press Co, job printing and advertising	68 39
872	Peter Kerst, blacksmithing	2 85
873	Duggan Bros, blacksmithing	127 75
874	St Paul Book & Stat Co, stationery	38 80
875	Saml M Magoffin, land S 18, T 29, R 22	1,610 00
876	J P Gribben, lumber	132 68
877	Griggs & Foster, coal and wood	214 35
878	Daily Globe, advertising and paper	15 18
879	Frank Morand, pots and ladles	51 96
880	Wm Stockton, final estimate	85 22
881	Geo Mitsch, blacksmithing	37 98
		$14,870.13

MARCH, 1884.

882	Jno Caulfield, Secretary, city pay roll for February	3,145 82
883	Nat German Am Bank, note and interest	10,200 00
884	Wm R Burkhard, powder	2 40
885	J S Burris, 143 M brick	1,430 55
886	W F Bailey, derrick and fixtures	43 40
[illegible]	[illegible]er & Rhodes, chain and hammers	10 08

888	W B & E A Boyd, Little Canada, hauling sand	106 50
889	J Crilley, Milwaukee, 23 day's use of derrick	115 00
890	K P Cullen, livery	8 00
891	Capital Iron Works, machinery work	86 15
892	Jno Dowlan, wood	12 38
893	J DeGraw & Sons, lumber	2 05
894	Adam Decker, miners' lamps	4 90
895	Duggan Bros, blacksmithing	99 23
896	Folsom & Brunton, lumber	433 85
897	Geo Exley, hauling 67 M brick	80 57
898	P F Egan & Co, repair clock	3 00
899	Chas Friend, leather	90
900	Register of Deeds, recording deeds, etc	3 75
901	Farwell, Ozmun & Jackson, picks, shovels, etc	260 87
902	J P Gribben, lumber	336 71
903	Jonathan Warden, St. Louis, pipe inspector, salary	150 00
904	Hermeyer Bros, wood	4 50
905	C E Herzog, repair fence	5 50
906	E C Long & Co, 8,200 feet piles, 10½	861 00
907	Felix Labore, 32 pieces of oak for tunnel	27 60
908	M Lieber, 2 cords tamarac	6 00
909	McMasters & Getty, ink etc, Engineer department	50
910	Griggs Bros, straw and oats	7 01
911	V Guerin, Little Canada, blacksmithing	8 20
912	Griggs & Griswold, 47 M brick	470 00
913	Griggs & Foster, 203 telegraph poles, coal and wood	223 73
914	Moeller, Pederson & Co, turning derrick poles, etc	11 85
915	Menk Bros, feed	1 35
916	Nicols & Dean, iron and steel	9 43
917	F J O'Brien, estimate No 2, tunneling	671 16
918	Pioneer Press Co, printing specifications etc	54 50
919	Ranney & Hodgman, hose	2 13
920	Robinson & Cary, rope, oil, etc	84 57
921	Thos Ryan, estimate No 3, brick work	290 07
922	D Swank, estimate No 4, excavation	191 87
923	Geo W Sherwood, driving 5,240 feet piles	733 60
924	V D Simar, estimate No 2, grading and ditching	651 39
925	St Paul & Duluth Ry, freight on stone	91 00
926	St Paul Gaslight Co, gas for February	5 65
927	Sanders & Matthews, cement	96 20
928	St P M & M Ry, transfering brick	14 00
929	St Paul Book & Stat Co, stationery	12 05
930	Taylor & Craig, lumber, etc	12 02
931	Wilson & Rogers, lead, kettles, etc	51 26
932	P H Kelly Mer Co, powder, fuse and oil	94 94
933	C C Miles, 2 keys	70
934	S Nadeau, 80 piles, hauling 47 M brick, etc	174 49
935	Paul Milette, hay, nails, supplies	5 50
936	Daily Globe, printing and advertising	16 52
937	J C Geary, estimate No 1, drayage	527 14
938	Con Casey, estimate No 1, drayage	18 05
939	Jno Caulfield, secretary, cash advanced for sundries	40 69
940	Jno Caulfield, country pay roll, Feby, 1884	3,127 61
941	Lars Sunby, in full for damages, etc	50 00
942	M Jennings, hauling 74,885 brick at 1.25	93 60
		$25,283 49

APRIL, 1884.

943	Jno Caulfield, Secretary, city pay roll	3,614 81
944	P H Kelly Mer Co, powder and oil	55 76
945	Holly Mfg Co, Lockport, N Y, 5 hydrant cases	15 00
946	Wilson & Rogers, lead and hemp packing	55 93
947	Farwell, Ozmun & Jackson, tools	57 82
948	Geo J Mitsch & Co., gasoline, etc	1 50

949	Pollock, Donaldson & Ogden, lamp globes	2 00
950	Moeller, Pederson & Co, lumber	1 90
951	Taylor & Craig, tool boxes, etc	11 55
952	St Paul Gaslight Co, gas for March	2 95
953	Folsom & Brunton, lumber	71 76
954	Jno Caulfield, cash advanced, freight, etc	31 77
955	Jno Pfiester, repairing clock	1 50
956	Ranney & Hodgman, tubing	75
957	Griggs Bros, feed	15 62
958	B Boeringer & Sons, setting levels	80
959	Warne & Stockton, team 1 day	3 00
960	Paul Millette, supplies	3 45
961	J Crilley, 9 day's use steam derrick	45 00
962	Jno Houle, 430 feet piles, (9 30-ft, 4 40-ft)	43 00
963	W F Bailey, work on derricks and hydrants	196 37
964	V Guerin, Little Canada, blacksmithing	2 00
965	St Paul & Duluth Ry, freight on brick	28 00
966	St Paul Book & Stat Co, stationery	25 75
967	K P Cullen, livery	3 00
968	Jas S Burris, 63 M sewer brick at 8.50	535 50
969	E C Long & Co' 1,600 feet piling	168 00
970	W B & E A Boyd, hauling 430 yards sand at 75c; hauling 20,-780 brick at 1.00	343 28
971	F J O'Brien, final estimate	483 44
972	Thos Ryan, tunneling	288 57
973	Fred Althen, 1,633 loads stone	1,633 00
974	Patrick Kelly, 464 loads stone at 1.00	464 00
975	Patrick Kelly, hauling 464 loads stone at 1.37	638 00
976	Mathias Henich, right of way deed	500 00
977	Franz Kalcher, right of way deed	500 00
978	S Nadeau, 8 20-ft piles, wood and hauling piles, etc	322 25
979	C A Seeley, consulting Engineer, pumps	50 00
980	Register of Deeds filing plats	3 20
981	Karl Koechler, right of way	1,033.00
982	Wm P Murray, City Attorney, judgment Wallace & Ryan	324 80
983	Jno C Geary, estimate No 2, hauling	387 98
984	Con Casey, estimate No 2, hauling	85 57
985	Jas M Cooley estimate No 1, final	846 00
986	Robinson & Cary, oakum, etc	5 42
987	Trick & Co	2 65
988	Pioneer Press Co, job printing and advertising	43 00
989	Griggs & Foster, fuel	57 00
990	Capital Iron Works, repairing pumps	55 80
991	Fk Morand, repairing upright boiler	6 50
992	E W Bazille, hauling 343 loads stone	471 62
993	Vine D. Simar, estimate No 3, excavating	2,191 25
994	D Swank, estimate No 5	109 01
995	G W Sherwood & Co, driving 7,369 lineal feet piling, 9½	700 05
996	G W Sherwood & Co, cutting 107 piles below water at 1.25	133 75
997	Jno Caulfield, Secretary, country pay roll	3,690 19
998	Jonathan Warden, St. Louis, Mo, pipe inspector, St Louis, Mo, 1 month	100 00
999	Adam Decker, miners' lamps	1 70
1000	Peter Joseph Hahn, right of way	200 00
1001	St Paul & Duluth Ry, freight on stone from Stillwater	259 00
1002	Wm Zollman, 16 loads of rock at 1.00	16 00
1003	Olman & Kerst, miscellaneous descriptions, 17.75; 3,645 descriptions at 5c Frontage Tax Roll	200 00
1004	Wm Freeman, White Bear, 44 blasting timbers	11 00
1005	Judak Kohler, 13 acres land, Sec 18, T 29, R 22	4,100 00
1006	Robert P Lewis, Lot 1, Sec 30, T 30, R 22	601 00
1007	Peter Rolinger, part of lots 17, 18, Bass garden lots	1,370 00
1008	Butts & Gregory, Stillwater, 668 cubic yards rubble and rip-rap stone	382 07
1009	Duggan Bros, blacksmithing	109 40

1010	H P Rugg & Co, lead pipe contract, No. 2	1,181 85
1011	H P Rugg & Co, pig lead and hemp packing contract, 1.00	1,490 31
1012	Boston Machine Co, Boston, Mass, water gates	6,505 79
1013	First Nat Bank, notes and interest	55,657 78
		$92,549 72

MAY, 1884.

1014	C D Gilfillan, St Paul, salary February, March and April	25 00
1015	P H Kelly, salary February, March and April	25 00
1016	C D O'Brien, salary February, March and April	25 00
1017	C H Boardman, salary February, March and April	25 00
1018	C W Griggs, salary February, March and April	25 00
1019	St Paul Foundry Co, castings	149 63
1020	Chas Passavant, abstracts	31 55
1021	St Paul Gas Light Co, gas for April	1 45
1022	Taylor & Craig, making box	5 85
1023	P H Kelly Mer Co, powder and fuse	61 13
1024	Farwell, Ozmun & Jackson, hardware	71 13
1025	Auerbach, Finch & Van Slyck, awning	19 00
1026	Sanders & Matthews, cement	669 65
1027	Slater & Riley, shoeing	7 00
1028	J W Cunningham, 4,000 envelopes	4 00
1029	John Caulfield, secretary, cash advances for sundries	20 15
1030	Patrick Kelly, hauling 11 loads rock	25 12
1031	Jos M Cooley, labor on caisson	7 50
1032	J C Geary, estimate No 3, hauling	1,341 40
1033	Con Casey, estimate No 3, hauling	322 55
1034	Con Casey, extra hauling, gates	34 65
1035	Oscar P Hillis, notice of application for Commissioners	2 25
1036	Jonathan Warden, St Louis, pipe inspector, salary for April	100 00
1037	Bingham & Morgan, Buffalo, N Y, valves	1,109 25
1038	R D Wood & Co, Philadelphia, hydrants, 25	1,300 00
1039	Nat Meter Co, New York, repair meter	5 25
1040	Edson Mfg Co, Boston, Mass, 3 Edson pumps, etc	223 77
1041	N W Mfg & Car Co, Stillwater, 100 ft 6 in rub beltg	20 00
1042	Shickle, Harrison & Howard Iron Co, St Louis, pipe and specials to April 15, contract No 1	68,758 99
1043	Shickle, Harrison & Howard Iron Co, pipe and specials to April 15, contract No 2	13,660 41
1044	John Caulfield, secretary, St Paul, city pay roll, April	5,664 72
1045	John Caulfield, secretary, country pay roll, April	4,243 66
1046	George Reis, City Treasurer, interest due June 1, 1884	7,017 50
1047	Griggs Bros, feed	2 29
1048	Anderson & Rothanson, glazing	7 35
1049	John G Hinkel, main frozen, hauling water	28 50
1050	Pollock, Donaldson & Ogden, lamp globes	2 67
1051	W F Bailey, Repair hydrant, valves, etc	157 01
1052	Griggs & Foster, fuel	337 22
1053	Adam Decker, tools, etc	2 90
1054	Duggan Bros, blacksmithing	67 70
1055	Wilson & Rogers, pipe and labor	12 60
1056	H P Rugg & Co, pipe and fittings	17 27
1057	Breuer & Rhodes, nails, tools, etc	41 13
1058	John Martin & Co, lumber	225 62
1059	J De Graw & Sons, lumber	9 39
1060	J P Gribben, lumber	365 07
1061	Capitol Iron Works, machine work	49 66
1062	Prendergast Bros, pipe, joints, etc	2 20
1063	St Paul Book & Sta Co, stationery	12 08
1064	Pioneer Press Co, adv and job work	37 41
1065	K P Cullen, livery	9 00
1066	V Guerin, Little Canada, blacksmithing	8 10
1067	Peter Pepin, " " "	2 75
1068	S Nadeau, wood and braces	27 73

1069	Paul Millette, supplies	3 60
1070	S Gervais, repair plow, etc	5 25
1071	Fk Cormer, 2 rakes	1 50
1072	D Swank, estimate No 6, Mississippi street grading, Sandy Lake	1,035 70
1073	V D Simar, estimate No 4, Miss street grading	2,427 57
1074	V D Simar, estimate No 1, gate chamber	306 00
1075	Morton & Terry, estimate No 6, excavation	365 16
1076	H P Rugg & Co. St Paul. estimate No 2, pig lead	3,054 21
1077	H C James, right of way	808 00
1078	Wm Welch, right of way	125 00
1079	E C Rogers, right of way	120 00
1080	N W Kittson, right of way	120 00
1081	Robinson & Cary, belting, rope and tools	104 37
1082	Daily Globe, adv	34 85
1083	G W Sherwood & Co, planking top piles	311 23
1084	Ranney & Hodgman, rub packg and boots	12 88
1085	C E Keller & Co, lumber	12 00
1086	Chas Friend, leather and harness	5 35
1087	M Conny, damages, overflow	25 00
1088	Shickle, Harrison & Howard Iron Co, St Louis, est No 2, contract No 1	25,068 25
1089	Shickle, Harrison & Howard Iron Co, estimate No 2, contract No 2	6,586 39
1090	Butts & Gregory, Stillwater, est No 2, stone	198 99
1091	Walter S Morton, St Paul, est No 1, section 5	788 59
1092	C D Jones, agent Erie Telephone Co, 6 4496-5280 miles telephone	456 76
1093	St Paul & Duluth Ry Co, freight on stone	210 00
1094	Vine D Simar, est No 1, grading Miss street bridge	237 58
1095	Jas Stinson, right of way	868 00
1096	Calvin S Pennell, for Gordon S Blake, agt	868 00
1097	Sanders & Matthews, 735 bbls M. cement in sks, 90c, less ft; 200 bbls L cement, 1.20; 183 bbls L cement, 1.30	1,119 40
1098	Boston Machine Co, Boston, Mass., water gates, 2480.00—14.75	2,465 25
1099	John Caulfield, secretary, cash advances for sundries	37 76
		154,210 85

JUNE, 1884.

1100	Shickle, Harrison & Howard Iron Co, St Louis, Mo, estimate No 3 contract No 1	21,390 57
1101	Shickle Harrison & Howard Iron Co, St Louis, Mo, estimate No 3, contract No 2	3,259 35
1102	R D Wood & Co, Philadelphia, 25 hydrants,	1,300 00
1103	Catherine Hill, St Paul, right of way	1,000 00
1104	Johannes Johnson, right of way	692 00
1105	Butts & Gregory, Stillwater, estimate No 3	225 25
1106	Geo W Hillman, St Paul, stenographic report of pumps	70 00
1107	Jno C Geary, estimate No 4, hauling	2,147 23
1108	Cornelius Casey, estimate No 4, hauling H & F S	209 85
1109	Cornelius Casey, gates and spec to pump house	93 45
1110	Geo Mitsch, blacksmithing	14 45
1111	J M Reed, Newport, Ky, on account pipe inspection	200 00
1112	Sanders & Matthews, St Paul, 9 bbls L C, 1.30; 1,373 bbls L C, 1.11½; 100 bbls L C, 1.30	1,672 61
1113	Register of Deeds, recording papers	12 75
1114	Averill, Russell & Carpenter, tarred felt, bags, etc	6 43
1115	St Paul Book & Stat Co, stationery	15 41
1116	C M & St P Ry Co, freight on brick	95 25
1117	Robinson & Cary, oil, tools, etc	50 15
1118	V Guerin, blacksmithing	3 50
[illegible]	[illegible]ul Milette, rent and supplies	8 60
	& Craig, carpenter work	36 13
	[illegible]lly Mer Co, pails, powder and oil	58 15

1122	C E Keller & Co, lumber	1 68
1123	Farwell, Ozmun & Jackson, tools	55 80
1124	McNamee & Keigher, feed	11 38
1125	St Paul Gaslight Co, gas for May	1 00
1126	Geo J Mitsch & Co, gasoline, etc	6 55
1126	St Paul, M & M Ry Co, labor under Como ave bridge	41 63
1128	Geo Ries, City Treasurer, interest and commission on 160,000 8 per cent bonds	6,448 00
1129	Jonathan Warden, St Louis, pipe inspector for May	100 00
1130	Thos Brennan, St Paul, lumber, 45,890 at 12.00	550 72
1131	Peter Kerst repairing picks	1 50
1132	Morton & Terry, estimate No 7 excavation	1,976 08
1133	Daily Globe, advertising	150 06
1134	Scribner Roofing & Cornice Co, tool box	3 00
1135	Irvine Bros, feed	1 60
1136	Erie Telephone Co, final estimate	116 79
1137	J DeGraw & Sons, lumber	3 73
1138	P. Boeringer, repairing transit	75 00
1139	Breuer & Rhodes, tools and chain	7 18
1140	Prendergast Bros, zinc, pail, etc	1 60
1141	W F Bailey, brass fittings	143 75
1142	Hill & Keating, livery	3 00
1143	Walter S Morton, est No 2, conduit	9,216 98
1144	Stevens & Elmer, est No 1, secs 3 and 4	5,415 63
1145	John Caulfield, secretary, city pay roll, May	9,621 71
1146	John Caulfield, secretary, country pay roll, May	7,313 75
1147	Shiekle, Harrison & Howard Iron Co, St Louis, est No —, contract No 1	22,972 58
1148	Vine D Simar, St Paul, estimate No 1, grading, McCarron's Lake	1,644 75
1149	Vine D Simar, est No 2 and final, Miss street bridge	1,095 63
1150	Vine D Simar, est No 2, gate chamber	224 40
1151	Vine D Simar, est No 5, grading for 30 inch main	2,030 78
1152	Geo D Sherwood & Co, est No 2	250 93
1153	Geo D Sherwood & Co, work on Rice street bridge	43 63
1154	H P Rugg & Co, estimate No 3, conduit No 1, 2,506 lbs hemp packing	169 18
1155	H P Rugg & Co, galv pipe, valves, etc	10 48
1156	Brennen & Finlayson, 5137 feet 4 inch plank at $12	61 65
1157	Chas Friend, leather and harness fixtures	7 50
1158	Elmer & Newell, special labor	2 00
1159	Globe Printing Co, 4 mos daily, to June 1	3 00
1160	A Swanson, drain at foot of dam	141 22
1161	Merchants Transfer Co, hauling rock to Little Canada	96 48
1162	Wm Zollman, 227 loads of stone at 95c	215 65
1163	Richard Price, doctoring horse	2 00
1164	Griggs & Foster, fuel	139 91
1165	J W Cunningham & Co, binding meas. book	3 00
1166	Wilson & Rogers, pipe and fittings	29 34
1167	Pioneer Press Co, printing and adv	110 32
1168	Adam Decker, hardware	1 83
1169	Pollock, Donaldson & Ogden, lanterns and fixtures	4 12
1170	Henry A Castle, notice to consumers, Dispatch	15 00
1171	John Ireland, right of way	753 00
1172	James Trobeck, Wabasha, right of way	416 00
1173	Moeller, Pederson & Co, St Paul, turning derrick	3 00
1174	W F Fifield & Co, lumber	4 06
1175	Drs Smith & Abbott, prof services, C Jacobson	13 00
1176	Auerbach, Finch & Van Slyck, window shades	6 00
1177	Duggan Bros, blacksmithing	64 20
1178	R A Duscharme, 34 days' use water tank	5 00
1179	J P Gribben, lumber	98 32
1180	Ranney & Hodgman, hose	15 93
1181	Northern Pac Ry Co, 1 engineer's level	100 00
1182	Henry R Worthington, 5 meters	174 88

1183	St Paul & Duluth Ry, freight on stone for Stillwater	364 00
1184	Butts & Gregory, 166.6 cu yds rip rap stone, 90c; 405.3 cu yds concrete stone, 50c; 851 yds rubble, 1.00	216 74
1185	D Swank, est No 7 and final, grading, Sandy Lake	2,007 53
		107,346 29

JULY, 1884.

1186	R D Wood & Co, Philadelphia, hydrants	1,300 00
1187	Bingham & Morgan, Buffalo, N Y, valve boxes	956 00
1188	Shickle, Harrison & Howard Iron Co, St Louis, Mo, estimate No 5, contract No 1	12,519 79
1189	Jonathan Warden, St Louis, Mo, 1 month salary, June, inspector	100 00
1190	H P Rugg & Co, St Paul, estimate No 4, contract No 1	3.024 61
1191	Wm Freeman, White Bear, 28 6-ft blasting timbers	7 00
1192	Thos Grace, St Paul, repairing break, Robert street	18 00
1193	Jas S Burris, 10 M sewer brick at 10.50	105 00
1194	L H Smith, moving house on line	75 00
1195	J H Schurmeier, Heavy pipe wagon	230 00
1196	Jno Martin Lumber Co, lumber	22 54
1197	Jos Fleckenstein, right of way	300 00
1198	S P Folsom, Jr, serving legal notices	20 00
1199	Boston Mach Co, Boston, Mass, water gates	1,918 00
1200	J C Geary, St Paul, estimate No 5, hauling	1,268 99
1201	Cornelius Casey, estimate No 5	74 18
1202	Cornelius Casey, extra hauling	163 46
1203	W H Wolcott, dating stamp	5 00
1204	Farwell, Ozmun & Jackson, hardware	24 01
1205	W F Fifield & Co, lumber	5 88
1206	Breuer & Rhodes, heavy hardware	14 24
1207	V D Simar, boarding camp, etc	180 00
1208	Adam Decker, hardware	3 15
1209	St Paul Book & Stat Co, stationery	7 33
1210	K P Cullen, livery,	29 00
1211	H R DeLaplaine, estimate No 7, piling	1,315 00
1212	W L Nichols, horse	200 00
1213	Jno Caulfield, Secy, city pay roll, June	10,866 14
1214	Jno Caulfield, Secy, country pay roll, June	5,746 76
1215	Wm L Kelly and T W Sheehy, admrs, right of way	1,000 00
1216	J M Cooley, fencing at McMenomys	88 40
1217	Daily Globe, printing and advertising	87 10
1218	Sanders & Matthews, 343 bbls cement	488 80
1219	A Swenson, excavation at Kohlers	349 60
1220	Griggs & Foster, fuel	112 08
1221	P Milette, Little Canada, rent and supplies	6 25
1222	Nicols & Dean, chain	4 26
1223	Chas Friend. harness, repairs and fixtures	7 20
1224	Strong, Hackett & Co, nails and files	2 93
1225	Pollock, Donaldson & Ogden, lantern fixtures	5 45
1226	C C Miles, one Yale key	35
1227	Robinson & Cary, oil and packing	14 71
1228	St Paul Gas Light Co, gas for June	75
1229	Geo J Mitsch & Co, gasoline, etc	5 60
1230	P H Kelly Mer Co, powder aud fuse	42 75
1231	Minn Coffee & Spice Co, 500 postals and ptg	5 75
1232	Register of Deeds, recording deeds	4 00
1233	Ranney & Hodgman, rubber boots	4 01
1234	Prendergast Bros, cash box, oil can, etc	7 25
1235	Cornelius Casey, extra hauling to pump	12 40
1236	Capitol Iron Works, rep pump and engine	32 93
1237	Richard Price. vet surgeon	8 00
1238	W F Bailey & Co, brass work and work on wagon	107 64
1239	Taylor & Craig, carpenter work	6 50
1240	St Paul Foundry Co, 5 man holes	75 00

1241	Slater & Riley, horseshoeing	7 25
1242	McNamee & Keigher, feed	21 09
1243	Duggan Bros, blacksmithing	83 82
1244	Wilson & Rogers, valves and pipe	118 12
1245	St Paul & Duluth Ry Co, stone from St Paul to Vadnais Lake	42 00
1246	St Paul & Duluth Ry Co, stone from Stillwater to Vadnais Lake	321 05
1247	J P Gribben, lumber	87 57
1248	H P Rugg & Co, pipe and fittings	527 13
1249	John Caulfield, secretary, cash advances for sundries	26 27
1250	J Crilley, Milwaukee, 18½ days' use steam derrick	92 50
1251	Boston Machine Co, Boston, Mass, water gates	2,675 50
1252	H P Rugg & Co, St Paul, est No —	58 39
1253	Butts & Gregory, Stillwater, stone, est No 5	444 29
1254	Vine D Simar, St Paul, est No 2 and final, McC Lake	2,003 40
1255	Vine D Simar, est No 6, grading Miss street	2,111 96
1256	Vine D Simar, est No 3, gate chamber	489 60
1257	J J Palmer, est No 1	960 37
1258	Morton & Terry, est No 8, excavating	4,349 96
1259	W S Morton, est No 3, sec 5	10,205 77
1260	Stevens & Elmer, est No 2, secs 3 and 4	11,014 29
1261	Shickle, Harrison & Howard Iron Co, St Louis, Mo, contract No 1	11,448 72
1262	Shickle, Harrison & Howard Iron Co, St Louis, Mo, contract No 2	7,554 49
1263	Hough & Gear, St Paul, est No 1, secs 1 and 2	5,576 37
1264	J H Fielding, repaving 157 sq yds, paving 65c	102 05
1265	Geo Ries, City Treasurer, int to Aug 1 on $150,000 8 per cent. bonds and ex	3,759 35
1266	H R De Leplain, est No 2, piling	1,649 37
1267	Wm Leonard, 68 loads rock	85 00
1268	R D Duscharme, cutting hay in creek	15 00
1269	Die Volkszeitung, adv use hose	10 00
1270	Simons & Bowers, horseshoeing	1 00
1271	V Guerin, Little Canada, blacksmithing	13 45
1272	A W Bell, clerk district court, St Paul, right of way award by commissioners	3,742 00
1273	D W Ingersoll, services right of way commissioner	25 00
1274	Geo L Becker, services right of way commissioner	25 00
1275	Wm Lindeke, services right of way commissioner	25 00
1276	Theo Parker, services right of way commissioner	25 00
		$112,675 92

AUGUST, 1884.

1277	Jno Caulfield, Secy, city pay roll for July	12,243 28
1278	Jno Caulfield, Secy, country pay roll for July (new supply)	4,917 69
1279	C D Gilfillan, salary May, June and July	25 00
1280	P H Kelly, salary May, June and July	25 00
1281	C W Griggs, salary May, June and July	25 00
1282	C D O'Brien, salary May, June and July	25 00
1283	J F Hoyt, salary for June and July	16 67
1284	C H Boardman, salary for May	8 33
1285	Prince & Shandrew, insurance on office	30 00
1286	Jno Rogers Jr, insurance on office	20 00
1287	St P M & M Ry, labor on Mississippi street crossing	7 74
1288	T A Abbott & Co, 17 boxes window frames	63 75
1289	J S Burris, 5 M sewer brick at 10.50	52 50
1290	Merrill & Ryan, 1 sieve	1 00
1291	Register of Deeds, recording deed	1 00
1292	J H Fielding, repairing pavement	74 75
1293	W F Baily & Co, repairs, stop cocks, etc	161 83
1294	C C Miles, repair lock and key	75
1295	The Pioneer Press Co, advertising and job work	7 35

1296	Geo J Exley, rehauling 20 and 24-in pipe and specials	186 13
1297	Farwell, Ozman & Jackson, tools, etc	55 67
1298	Breuer & Rhodes, hammer and nails	3 30
1299	P H Kelly Mercantile Co, powder, oil, fuse etc	28 03
1300	Minn Coffee & Spice Co, job printing	15 75
1301	St Paul Gaslight Co, gas for July	1 25
1302	Duggan Bros, blacksmithing	80 85
1303	St Paul Book & Stat Co, stationery and blank books	38 03
1304	Henry E Wedelstaedt, 1 doz memorandum books	30
1305	H P Rugg & Co, lead pipe and solder pot	292 89
1306	Fairbanks, Morse & Co, cement testing machine	80 00
1307	Cornelius Casey, estimate No 6, hauling	290 91
1308	Jno C Geary, estimate No 6, hauling	888 31
1309	H R De Leplain, estimate No 3 and final piling	1,057 78
1310	Jonathan Worden, St Louis, Mo, pipe inspector for July	100 00
1311	Shickle, Harrison & Howard Iron Co, St Louis, Mo, estimate No 7, contract No 1. pipe	8,877 96
1312	Shickle, Harrison & Howard Iron Co, St Louis, Mo, est No 5, contract No 2, pipe and specials	5,508 61
1313	R D Wood & Co, Philadelphia, Pa, 25 fire hydrants and 6 caps	1,312 00
1314	M Jennings, St Paul, hauling casting to pump house	2 50
1315	Adam Decker, mason's line, etc	1 30
1316	Wm Zollman, 523 loads of stone (quarry rock) at 1.50	784 50
1317	Wm Leonard, 288 loads bank rock at 1.25 (f o b)	360 00
1318	McNamee & Keigher, feed	15 33
1319	R W Bell, fees condemnation proceedings	7 50
1320	Geo J Mitsch & Co, gasoline, etc	2 25
1321	Wilson & Rogers, pipe and fittings	73 15
1322	Prendergast Bros, tin pails	3 50
1323	Henry A Castle, Dispatch. adv	80
1324	W F Fifield & Co, shingles	1 90
1325	Burnham & Jones, pipe	39 25
1325	A Swanson, excavation, Kohler's meadow	158 60
1327	Hough & Gear, est No 1, terminal chamber	878 66
1328	H P Rugg & Co, est No 6, lead and packing	3,486 90
1329	Hough & Gear, est No 2, secs 1 and 2, conduit	10,826 63
1330	Stevens & Elmer, est No 3, secs 3 and 4, conduit	11,056 31
1331	V D Simar, est No 7, grading right of way	2,667 55
1332	J J Palmer, est No 2, foundations	3,675 72
1333	Morton & Terry, est No 9, excavations	3,196 00
1334	Averill, Russell & Carpenter, tar paper	70
1335	J P Gribben, lumber	85 00
1336	Bennett & Kingsbury, galv iron pans	7 50
1337	V Guerin, Little Canada, blacksmithing	8 50
1338	Ranney & Hodgman, St Paul, rubber boots	4 01
1339	Nichols & Dean, nails	70
1340	Sanders & Matthews, cement	900 39
1341	Robinson & Cary, oil, belting, etc	28 50
1342	The Daily Globe, adv proposals, etc	13 14
1343	J S Burris, 8 M sewer brick, 11.50	92 00
1344	Hess & Bandel, St Cloud, 14 M brick, 9.00	126 00
1345	Griggs & Foster, St Paul, coal and slabs	225 84
1346	Simmons & Bowers, horseshoeing	75
1347	Northern Pacific Ry Co, freight on brick	28 00
1348	N P Peterson, Minneapolis, 114 M brick	1,140 90
1349	C J Swanson, 36,355 brick	363 55
1350	Wm Schwartz, Brainerd, Minn, 14 M brick	112 00
1351	James Waters, Minneapolis, diver and asst	20 00
1352	John Caulfield, secretary, St Paul, cash adv for sundries	30 57
1353	St Paul & Duluth Ry, Stillwater, freight on 34 cars stone	231 00
1354	St Paul & Duluth Ry, E Minneapolis, freight on 20 cars brick,	120 00
1355	Butts & Gregory, Stillwater, stone	350 97
1356	Stevens & Elmer, St Paul, est No 1, piling	993 35
1357	W S Morton, estimate No 4, sec 5 conduit	11,993 40

1358	St Paul & Duluth Ry Co, freight on 97 cars at 7.00—stone; freight on 2 cars at 7.50	694 00
1359	Erie Telegraph & Telephone Co, special services	1 50
1360	F G Draper & Co, 1 tape measure	2 00
1361	Geo J Exley, extra hauling, 42,250 lbs at 1.00	15 87
1362	J B Derosier, Little Canada, 6 maul blocks	1 50
1363	Jos Robert, right of way	50 00
1364	Edmund Rice, Jr, right of way	5 00
1365	Jas M Reed, Newport, Ky, inspecting pipe	217 65
1366	Wm Thompson, Louisville, Ky, inspecting pipe	280 04
1367	Bingham & Morgan, Buffalo, N Y, stop boxes	810 00
1368	Nels Larson, release for damages	163 50
1369	City and County Hospital, attendance on Nels Larson	90 00
1370	Dr A B Ancker, attendance on Nels Larson	50 00
1371	Andrew Paulson, for F C Burgess, atty, in full for damages	25 00
1372	Wm S Moore, atty, general retainer	100 00
1373	J H Schurmier, difference in buggies exchanged for Supt	105 00
1374	Jno C Geary for C Casey, estimate No 7 and final, drayage	852 37
1375	Cornelius Casey, hauling pipe to Little Canada	5 00
1376	Shickle, Harrison & Howard Iron Co, St Louis, Mo, estimate No ., contract No 2	9,638 42
1377	Shickle, Harrison & Howard Iron Co, St Louis. Mo, estimate No . and final, contract No. 1	3,703 54
		$107,500 09

SEPTEMBER, 1884.

1378	Geo Ries, City Treasurer, October interest	15,037 50
1379	Shickle, Harrison & Howard Iron Co, St Louis, estimate No 6, contract No 2	4.914 53
1380	Jonathan Warden, St Louis, in full for inspecting pipe	60 00
1381	Jas Waters, engineer Minneapolis water works, diver, helper and suit, balance	6 00
1382	C J Swanson, Minneapolis, 21 M brick at 10.00	210 00
1383	P H Kelly Mer Co, powder, fuse and oil	86 51
1384	Minn Coffee & Spice Co, printing	12 00
1385	T M Metcalf, hay seed for sodding pump house grounds	1 00
1386	P Boeringer & Sons, steel tapes and repairing transit	45 90
1387	Con Casey, hauling gates to water weir	5 00
1388	Wm Forrestel, paving roadway to yard	21 60
1389	Northern Pacific Ry Co, freight on 12 cars brick from Brainerd	168 00
1390	St Paul Book & Stat Co, stationery	23 32
1391	St Paul Gaslight Co, gas for August	1 25
1392	H R DeLaplain, 2 oak timbers	5 30
1393	Wm Leonard, 242 loads rock at 1 25	302 50
1394	Patrick Curran 20 loads rock at 1.00	20 00
1395	W F Bailey & Co, brass fittings aud repairs	140 35
1396	Prendergast Bros, 4 tin pails	2 00
1397	Pioneer Press Co, printing and advertising	16 65
1398	Jno Martin Lumber Co, lumber	10 88
1399	Farwell, Ozmun & Jackson, tools and hardware	130 94
1400	Register of Deeds, recording deeds	1 50
1401	Tusler. DeLong & Co, 1 plow share	60
1402	Geo J Mitsch & Co, oil, gasoline, etc	9 95
1403	Robinson & Cary, oil, diaphragms, etc	27 29
1404	Chas Friend, harness fixtures and repairs	8 40
1405	Cornelius Casey, estimate No 7, drayage	362 14
1406	J P Gribben, lumber	45 50
1407	J H Fielding, relaying street pavement	64 70
1408	McNamee & Keigher, feed	11 29
1409	Taylor, Craig & Co, carpenter work	1 42
1410	Wilson & Rogers, pipe and fittings	77 30
1411	J DeGraw & Sons, lumber	3 49
1412	Sanders & Matthews, cement	248 63
1413	Jno Caulfield, Secy, city pay roll for August	13,663 52

1414	Jno Caulfield, Secy, country pay roll for August	5,128 91
1415	Peter Nadeau, Little Canada, 1 load hay	3 75
2416	Peter Guilbert, 1 piece leather	75
1417	Paul Milette, Little Canada, office rent and supplies	11 45
1418	E A Boyd, Little Canada, hauling 2 cars brick	21 20
1419	V Guerin, Little Canada, blacksmithing	8 50
1420	H P Rugg & Co, pipe and fittings	5 79
1421	K P Cullen, livery	9 00
1422	The Daily Globe Co, advertising	7 33
1423	Richard Price, veterinary services	10 40
1424	Slater & Riley, horseshoeing	9 00
1425	H Gilman, traveling expenses, etc	7 00
1426	Sanders & Matthews, 16 bbls cement	22 40
1427	Clerk of Dist Court, cop of papers	4 50
1428	Griggs & Foster, fuel	121 25
1429	Duggan Bros, blacksmithing	74 00
1430	Wm Zollman, 275 loads rock	412 50
1431	Northwestern Mfg & Car Co, Stillwater, bal on brick	63 00
1432	Henning & Melvin, Chaska, 140 M brick at 8 75	1,225 00
1433	Hess & Bandel, St Cloud, 56 M brick at 9.00	504 00
1434	N P Peterson, Minneapolis, 725.10 M brick at 10.00	725 10
1435	Wm Schwartz, Brainerd, 85 M brick at 8.00	680 00
1436	St Paul & Duluth Ry, St Paul, freight on brick and stone for gate house	698 50
1437	St Paul & Duluth Ry, E Minneapolis, freight on 12 cars brick	72 00
1438	St Paul & Duluth Ry, Stillwater, freight on 4 cars brick	28 00
1439	St Paul Foundry Co, St Paul, plug, sleeves, etc	35 55
1440	Butts & Gregory, Stillwater, estimate No 7 and final, stone	337 93
1441	Stevens & Elmer, St Paul, estimate No 4, secs 3 and 4 of conduit	9,601 30
1442	Hough & Gear, est No 3, sections 1 and 2 of conduit	13,284 31
1443	Hough & Gear, est No 2, waste weirs A and B and No 1 ter chamber	2,984 14
1444	J J Palmer, est No 3, foundations engineer's room, etc	2,379 84
1445	J J Palmer, est No 1, superstructure engine house, etc	425 00
1446	Vine D Simar, estimate No 8, grading Mississippi street right of way	1,823 62
1447	Morton & Terry, est No 10, excavation	2,129 76
1448	W S Morton, est No 5, sec 5, conduit	16,537 82
1449	V D Simar, for John Caulfield, secretary, est No 4, gate chamber	1,526 71
1450	Capitol Iron Works, water gates, boxes and machine work	399 10
1451	John Caulfield, secretary, cash advanced for hay, telegrams, stamps, etc	20 57
1452	Thos King, release for damages	250 00
1453	Minnesota stone Co, stone sidewalk front of office	194 00
1454	Chicago, Milwaukee & St P Ry, freight on brick	201 00
1455	City and county hospital, board, medicines, etc, for Thomas King	90 00
1456	Dr A B Ancker, prof attendance on Thos King	50 00
1457	Chas D Elfelt, right of way	55 00
1458	V D Simar for H B Willis, use of road scrapers	11 18
		97,937 12

OCTOBER, 1884.

1459	John Caulfield, secretary, city pay roll for September	12,328 15
1460	John Caulfield, secretary, country pay roll for September	2,015 26
1461	J De Graw & Sons, lumber	4 40
1462	J P Gribben, lumber	4 50
1463	John Martin Lumber Co, lumber	75
1464	Taylor & Craig Co, carpenter work	6 02
1465	E W Bazille, 800 sewer brick at 9.50	7 60
1466	V Guerin, Little Canada, blacksmithing	3 80
1467	J H Fielding, St Paul, relaying pavement	62 75

1468	Pioneer Press Co, job printing	37 75
1469	Robinson & Cary, oil, etc	2 75
1470	Averill, Russell & Carpenter, tarred felt	70
1471	Ranney & Hodgman, 2 pair rubber boots	8 03
1472	Farwell, Ozmun & Jackson, tools	2 25
1473	Pollock, Donaldson & Ogden, lanterns and fixtures	3 70
1474	St Paul Gas Light Co, gas for September	1 50
1475	McNamee & Keigher, feed	30 87
1476	Noyes Bros & Cutler, lead and oil	1 65
1477	Minn Coffee & Spice Co, printing blanks	4 50
1478	P H Kelly, Mer Co, powder, fuse, etc	84 00
1479	J T Le Duc, blacksmithing	65
1480	St Paul Book & Stationery Co, stationery	11 31
1481	W F Bailey & Co, brass goods and repairs	169 95
1482	St Paul & Duluth Ry Co, freight on stone and brick	109 00
1483	John Bell, 16 bbls Louisville cement,	22 40
1484	Chas Friend, leather, etc	2 20
1485	Geo J Mitsch & Co, gasoline, glue, etc	3 92
1486	Griggs & Foster, fuel	19 33
1487	Patrick Kelly, 10 loads stone on cars	15 00
1488	Wilson & Rogers, lead and iron pipe, etc	170 82
1489	Capitol Iron Works, bolts, grates, etc	109 28
1490	R D Wood & Co, Philadelphia, 25 fire hydrants	1,300 00
1491	Boston Machine Mfg Co, Boston, 1 indicator, etc, for 20-inch gate	9 00
1492	Henning & Melvin, Chaska, 45 M sewer brick at 8.00	360 00
1493	Hess & Bandel, St Cloud, 37½ M brick at 9.00	337 50
1494	St Paul Cement Pipe Works, St Paul, cement pipe	2 75
1495	H P Rugg & Co, lead and iron pipe and fittings	586 86
1496	Duggan Bros, blacksmithing	89 76
1497	Sanders & Matthews, 19 bbls cement	27 35
1498	Fred Althen, 50 loads stone on cars	75 00
1499	J S Burris, 4 M sewer brick at 10.50	42 00
1500	Geo Mitsch, blacksmithing	4 35
1501	W S Morton, est No 6, sec No 5	7,341 86
1502	Morton & Terry, est No 11, excavation	689 76
1503	Hough & Gear, est No 3, waste weirs and terminal chamber	3,725 71
1504	Hough & Gear, est No 4, secs 1 and 2 of conduit	11,786 62
1505	Stevens & Elmer, est No 5, secs 3 and 4	11,442 16
1506	V D Simar for H B Willis, est No 8, grading Miss street right of way	1,560 14
1507	Lyman J Rood, est No 1, dwelling houses at lake and pump station	2,261 00
1508	J J Palmer, est No 2, superstructure pump house	14,280 00
1509	K P Cullen, livery	11 00
1510	John Caulfield, secretary, cash advanced for freight, etc	28 09
1511	O W Davis, moving caisson, etc	10 55
1512	Cornelius Casey, est No 8 and final, hauling	131 75
1513	S Milette, services running boarding camp	125 00
1514	V D Simar for John Caulfield, secretary, est No 5, work on gate chamber	1,514 93
1515	Chic, Mil & St P Ry, freight on brick	66 00
1516	J J Palmer, est No 4 and final, foundations	2,716 15
1517	V D Simar for John Caulfield, secretary, est No 6, gate chamber	84 62
1518	Herzog Mfg Co, iron truss roof	1,850 00
1519	E P Bassford, services as architect	555 00
		78,259 66

NOVEMBER, 1884.

1520	John Caulfield, secretary, city pay roll for Oct	6,942 69
1521	John Caulfield, secretary, country pay roll for Oct	2,266 82
1522	B Magoffin, Jr, in full for damages at Sandy Lake	100 00
1523	J F Hoyt, salary for August, September and October	25 00
1524	P H Kelly, " " "	25 00

1525	C W Griggs, salary for August, September and October	25 00
1526	C D Gilfillan, " " "	25 00
1527	C D O'Brien, " " "	25 00
1528	Henry R Worthington, N Y, meters	337 46
1529	R D Wood & Co, Philadelphia, hydrants, repairs and dupl	47 00
1530	Shickle, Harrison & Howard Iron Co, St Louis, est No 7, contract No. 2	2,423 71
1531	H P Rugg & Co, St Paul, lead and iron pipe, etc	246 50
1532	W F Bailey & Co, brass fittings and repairs	149 79
1533	Slater & Riley, horseshoeing	10 00
1534	Pioneer Press Co, books	28 50
1535	McNamee & Keigher, feed	11 30
1536	St Paul Gas Light Co, gas for Oct	1 00
1537	Register of deeds, recording deed	75
1538	P H Kelly Merc Co, powder and fuse	64 83
1539	Farwell, Ozmun & Jackson, tools	5 43
1540	Robinson & Cary, machinery supplies	6 72
1541	A G Foster, fuel	71 88
1542	Craig, Larkin & Smith, 2 lamps	4 30
1543	Pollock, Donaldson & Ogden, lanterns and fix	5 15
1544	Jno Martin lumber Co, fence posts	9 37
1545	T M Metcalf, 2½ iron screens	27 30
1546	St Paul, Book & Stat Co, mapping paper and stationery	19 50
1547	Schliek & Co, 2 pair rubber boots	5 70
1548	Sanders & Matthews, cement	113 20
1549	Jno Bell, 28 bbls cement	39 20
1550	Wilson & Rogers, pipe and fittings	85 97
1551	Duggan Bros, blacksmithing	100 45
1552	D L Curtice, city map	1 00
1553	Adam Decker, hardware	1 50
1554	P Boeringer & Sons, repairing tapes	1 00
1555	Richard Price, veterinary surgeon	19 85
1556	St Paul Globe Printing Co, 5 mos subscription to Nov 1	3 75
1557	St P M & M Ry, iron rail and labor	33 38
1558	Capital Iron Works, blacksmithing	6 00
1559	W S Morton, fuel, miscellaneous material	110 80
1560	Lyman J Rood, estimate No 2, dwelling house	3,349 00
1561	J J Palmer, estimate No 3, superstructure pump house, etc	3,400 00
1562	Geo J Mitsch & Co, gasoline, oil, etc.	6 25
1563	Adams, Rothwell & Co, manhole rings and covers	295 75
1564	Herzog Mfg Co, estimate No 2, iron roof, etc	1,750 00
1565	Geo Ries, City Treas, interest due Dec 1, 1884	7,017 50
1566	Chas Friend, horse blankets	8 70
1567	Prendergast Bros, lead pipe and repairs on furnace	8 90
1568	K P Cullen, livery	6 00
1569	Paul Milette, Little Canada, office rent, Little Canada	10 00
1570	C C Miles, lock and key	1 10
1571	F Campbell, embankment waste weir "A"	89 94
1572	Jno Caulfield, Secy, cash advanced for hay, freight, etc	21 15
1573	Jno Caulfield, Secy, account of cash advanced for gate chamber, contract V D Simar	54 30
1574	Stevens & Elmer, pails and counting brick, etc	40 25
1575	Stevens & Elmer, soil dressing waste weir "B"	297 00
1576	Stevens & Elmer, estimate No 6 and final, secs 3 and 4 conduit.	7,507 50
1577	Martin Ring, 40 stone monuments at 70c.	28 00
1578	Trick & Co, carpenter work	40 50
1579	Rand, McNally & Co, C Sedegreave agt, 1 map	3 50
1580	D Swank, settlement for use of tools	80 00
1581	E W Bazille, estimate No 2 and final, brick	252 60
1582	W S Morton, estimate No 7 and final, sec 5 conduit.	13,004 99
1583	Morton & Terry, estimate No 12 and final, excavation	6,790 27
1584	V D Simar for H B Willis, estimate No 10 and final, grading right of way, Mississippi st	3,886 15
		$ 61,376 14
	Total disbursement	$909,902 70

THE SUPERINTENDENT'S REPORT.

St. Paul, December 1, 1884.

To the President and members of the Board of Water Commissioners:

Gentlemen—In compliance with law and practice, I have the privilege to present to your honorable board my third annual report, informing you of the condition of the works and the amount done during the past season. I also leave before you the recommendation, estimate and size of pipe intended to be laid during the coming season, together with the names of streets on which it is to be laid.

We have relaid the mains on Fourth and Fifth streets between Robert and Minnesota at a cost of $708.80, all other costs $19.10, making a total of $727.90 for this year's expenditure on the repairs of mains, which is trivial in comparison to some years previous. We now have all our mains in thorough repair.

The repairs of valves is limited to changing the old wooden boxes to iron of the Bingham & Morgan pattern, which was adopted two years ago, and which has proved to be of far greater value than I had then any idea of. I regard them as one of the most useful inventions in hydraulic machinery of the past twenty years. They are almost indispensible, being so easy to be adjusted to any varied change of grade, without excavation.

The repairing of hydrants this season was expensive, principally due to the changes of grade, width of sidewalks and severe frost. We had to remove 32 on account of change of grade and width of sidewalks, which could have been avoided if the streets had stone curbs when the hydrants were set. 13 were changed on account of freezing.

All old Holly hydrants changed were replaced by Mathews of the large size, the old Hollys being now used for street sprinkling and cistern filling purposes, for which they are well adapted. It is a great saving in repairs to have the street sprinkling hydrants separate from those used for fires. When fire hydrants are used for street sprinkling they cannot be kept in repair for the Fire Department. When any of them would get out of order there would be no telling by whom it was last used.

The period between February 15th and March 10th was the most severe on hydrants which I have experienced during the twelve years I have charge of the St Paul water works. Owing to the severe frost all fire hydrants were inspected every day by my assistant, Mr. Thomas McGovern. Any of them that showed signs of freezing he steamed immediately, as steaming is a sure preventive against frost for at least forty-eight hours.

It has often been his lot to be at work from 7 o'clock A.M. to 9 o'clock P.M. so as not to leave any hydrant out of working order over night, if it were possible, regardless of time, to put it in repair. Any hydrant not fit for service I had reported to the Fire Department. I can say it was from the ability, experience and watchfulness of T. McGovern that we were able to keep this branch of our service in such thorough repair.

Hydrants are liable to give more trouble in their first year's service than afterwards. I have now all of them in good repair and anticipate very little trouble from them during the coming winter, except those on high service where there is a change of soil, results from which remain to be seen.

I have laid during the year on low service 2,230 feet 4-inch pipe, 12,409 feet 6-inch, 122 feet 12-inch, 1,394 feet 16-inch, 66 feet 20-inch, 1,716 feet 24-inch, 16,-350 feet 30-inch and 18 feet 36-inch, making a total 6 2625-5280 miles. Also, we have set 26 fire hydrants, 7 sprinkling hydrants and 80 valves.

On high service or St. Anthony Hill I laid 15,054 feet 6-inch pipe, 9,078 feet 12-inch, 6,285 feet 16-inch, 10,907 feet 20-inch, 10,071 feet 24-inch, making 9 3575-5280 miles; 53 fire hydrants, 4 street sprinkling hydrants and 70 valves.

The cost per lineal foot for trenching, laying pipe including setting of hydrants, valves and blow offs is about as follows: 4-inch pipe, 25 cts.; 6-inch, 30 cts; 12-inch, 45 cts.; 16-inch, 50 cts.; 20-inch, 60 cts.; 24-inch, 70 cts.; 30 and 36-inch, $1.25.

The total amount of water pipe on high and low service now laid is 45 442-5280 miles.

Of the above there were 8,183 feet of rock trenching costing $1.25 to $2.50 per lineal foot for trenching, laying pipe and finishing. We used on our rock excavation a can of powder on a daily average without damage except the breaking of a fence. The cost of repairing same was $5.50.

The trenching and laying of the 30 and 36-inch pipe look to be expensive. It was caused by the size and weight of the pipe and the large amount of water with which we had to contend.

I consider all the above work done at least 15 per cent. cheaper than if let by contract. Moreover, if let by contract we would have to employ engineers and inspectors at a cost of about $6,000.00.

It has been my good fortune to superintend all the above work without any serious casualty to anyone.

We repeatedly warned the men not to stand under the pipe while being lowered. One man who did not attend to orders had his leg broken, evidently through his own negligence

To accomplish all this work I cannot speak too highly of my assistant and foremen, through whose skill and energy the city had neither litigation or bill of damage to pay. Considering the amount of mains and services which have been laid, I consider this very remarkable.

There have been 336 new connections laid on low service and 164 on high service. This is the largest amount of connections ever laid in St. Paul during a season. It shows the citizens are beginning to appreciate the wonderful advantage of a pure water supply, and when completed, I may say our works will be stupendous. They fall far short of what cities had to accomplish in dark, barbaric ages to get a pure supply of water. Impure water (on the most eminent authorities of our own city and the other principal cities of the union) is the source or germ from which most of the contagious diseases emanate. The awful scourge of cholera in all countries finds in impure or well water its most faithful ally; and now when all countries in the old world are either threatened with or suffering from this deadly disease, it behooves us here in this western state to use all the preventitives that are in accordance with human dictates to preserve us from this frightful visitation.

Wells in cities are contaminated to a greater or less degree with sewerage and other filth thrown on the surface, thereby making the water in them impure. I would recommend an ordinance being passed prohibiting the use of such water in sections covered by water mains. It has been known there were over 2,000 deaths from typhoid fever from drinking milk diluted with water taken from a well adjoining a cess pool on a farm near London from which the milk was taken. Repeated analysis of our water here shows it the most pure in the state.

The total number of connections on high and low services now is 2,931. Seventeen old services relaid on account of rebuilding. It is seldom old services answer for new buildings. When the old service gets broken in the excavation of cellars or not answering for new areaway it has to be cut off at main, for a service not in use is more liable to freeze or leak than one in use.

I am now at our winter work, on Seventh street from Goodrich avenue to Short Line Railroad; on Exchange street from Third to Seventh, and on St. Peter street from Third to Fourth. This class of work which is rock can be done cheaper in winter than in the summer months. Moreover, it enables me to keep my skilled hands for summer work. If this class of men were discharged they would find work elsewhere and it would not be always their places could be filled when required. It takes at least one year's experience on waterworks to attain the necessary skill.

It will be found necessary during the coming year to improve the canal from Vadnais to Pleasant Lake, now in use, also 36-inch sluiceway and our over-flow at Pleasant Lake. The old flume is in bad repair. Guard piling is required for the above work and a 12-inch sluiceway and gate at Charles Lake.

The pipe can be laid on Dayton's Bluff and supply of water on in 90 days after the completion of Seventh street grade.

The waste of water here as well as in other cities is a source of great annoyance to the management of the works, amounting to 50 per cent. of the water used. It is impossible to supply a city with an unlimited supply of pure water. Numbers of consumers pay little or no attention to keeping their fixtures in proper repairs. They seem to think they will not have an equivalent for the sum paid unless they allow a quantity to be wasted. The meter system I would recommend to meet such people. By their aid we would be enabled to make each consumer pay for the amount used and wasted on his premises.

It will be necessary to contract early in winter for pipe gates, valves and hydrants for the coming season, as the demand in the spring for extensions will be very

great. The work can be done early in spring cheaper than late in the season, as wages will be lower, men abundant and better able to work.

We will require a new map of the city to show all mains, hydrants, gates and valves. The old one now in use shows only those on low service.

The following tables will show an inventory of stock, tools, quantity and size of pipe, hydrants, gates and valves laid and intended to be laid during the coming season.

In conclusion I have to thank Mr. John Caulfield, the Secretary of our Board, for invaluable assistance afforded me, as also your honorable body for the many kindnesses I have received at your hands

Respectfully submitted,

J. B. OVERTON,
Superintendent Water Works.

ESTIMATE OF PIPE RECOMMENDED TO BE LAID ON GRAVITY SYSTEM IN 1885.

STREET.	FROM STREET TO STREET.	4 Inch	6 Inch.	12 Inch	16 Inch	20 Inch
Chestnut	Pleasant avenue to West Seventh		900			
Sherman	Pleasant avenue to West Seventh		900			
Oak	Walnut to Ramsey		1000			
Forbes	McBoal to Goodrich avenue		425			
McBoal	Douglas to West seventh		225			
Douglas	Ramsey to Goodrich avenue		1300			
Goodrich avenue	Western avenue to West seventh			1030		
West Seventh	Short Line to Webster				1700	
Colborne	West Seventh to Jefferson		700			
Goodhue	West Seventh to Cliff		1200			
St. Peter	Sixth to Seventh		350			
St. Peter	Third to Fourth		250			
Thirteenth	Canada to Mississippi		750			
Fifteenth	Broadway to Jackson		1300			
Canada	Fourteenth to Fifteenth		300			
Broadway	Thirteenth to Fifteenth		575			
Exchange	Third to Seventh	500				
Franklin	Third to Fourth	250				
Cedar and Twelfth	Tenth to Mississippi					3400
De Sota	Lafayette to Farquier			1500		
Farquier	De Sota to Paine			1900		
Jessie	Minnehaha to Farquier		700			
Westminster	Waverly Place to Bridge		1200			
Temperance & Norris	Tenth to Pearl	1250				
	Hydrants	1500				
		3500	12075	4430	1700	3400

4 inch..... 3500
6 inch.....12075
12 inch..... 4430
16 inch..... 1700
20 inch..... 3400

25105 feet or 4 3985–5280 miles.

ESTIMATE PIPE RECOMMENDED TO BE LAID ON ST. ANTHONY HILL, IN 1885. HIGH SERVICE.

STREET.	FROM STREET TO STREET.	4 Inch	6 Inch.	12 Inch	16 Inch
Farrington avenue...	Dayton avenue to Carroll.....		1100		
Virginia ovenue.....	Nelson avenue to Summit avenue.....		1800		
Nina avenue.....	Laurel avenue to Summit avenue.....		400		
Selby avenue.....	Farrington avenue to Dale.....		3300		
Portland avenue.....	Western avenue to Dale.....		2640		
Dale.....	Grand avenue to Marshal avenue.....			500	2600
Marshall avenue.....	Dale to Western avenue.....		2640		
Makuhim.....	Carroll to Summit avenue.....		3400		
Arundel.....	Selby avenue to Laurel avenue.....	425			
Arundel.....	Summit avenue to Portland avenue....	350			
Arundel.....	Marshall avenue to Dayton avenue....	400			
Nelson avenue.....	Summit avenue to Western avenue....		2400		
Kent.....	Summit avenue to Dayton avenue.....	2200			
Iglehart.....	Wabashaw to Makubin.....		5600		
Carroll.....	Makubin to Rice.....		4200		
Summit avenue.....	Josette to Wabashaw.....		1200	1400	
College avenue.....	Rice to Third.....		1200		
Third.....	College avenue to Summit avenue.....		500		
Tilton.....	Rice to Wabashaw.....		1250		
Wabashaw.....	Bluff to Summit avenue.....		900		
Martin and Bluff....	Rice to Robert street.....		2100		
University avenue...	Robert street to Western avenue.....			4400	
Rice.....	Como avenue to Summit avenue.....				3500
Lawton avenue.....	Summit avenue to Grand avenue.....		425		
Grand avenue.....	Lawton to Avon.....		3700		
Josette.....	Nelson avenue to Carroll.....		800		
Lewis.....	Nelson avenue to Carroll.....		800		
Rondo.....	Western avenue to Makubin.....		1300		
Laurel avenue.....	Nina avenue to Western avenue.....		1100		
St. Peter.....	Martin to University avenue.....		1000		
	Hydrants.....	1500			
		4875	43755	6300	6100

6 inch..... 4875
6 inch.....43755
12 inch..... 6300
14 inch..... 6100

61030 feet or 11 2950–5280 miles.

ESTIMATE OF PIPE RECOMMENDED TO BE LAID ON DAYTON'S BLUFF IN 1885.

STREET.	FROM STREET TO STREET.	4 Inch	6 Inch	12 Inch	16 Inch
East Seventh	Frank to Hoffman avenue			1100	5800
Maria avenue	Hudson to East Seventh		2800		
Bates avenue	Plum to East Seventh			3000	
Hudson avenue	Maria avenue to Maple		1050		
Farquier	Earl to Mendota		2000		
Mendota	Farquier to East Seventh		700		
Earl	Farquier to East Seventh			600	
East Fourth	Maria avenue to Bates avenue		500		
East Third	Maple to Maria avenue		1100		
East Fifth	Maple to Maria avenue		1100		
	Hydrants	600			
		600	9250	4700	5800

4 inch..... 600
6 inch.....9250
12 inch.....4700
16 inch.....5800

20350 feet or 3 4510–5280 miles.

Total on Low Service.....25105
Total on High Service.....61030
Total on Dayton's Bluff....20350

106485 feet or 20 885–5280 miles.

ESTIMATE OF AMOUNT AND COST OF PIPE RECOMMENDED

to be laid during the season of 1885, on high and low service and on Dayton's Bluff.

20 885-5280 miles street mains, 3035 640-2000 tons, at $33.00	$100,165 56
Specials 84 " " 65.00	5,460 00
225 fire hydrants (Mathews), at $60.00 set	13,500 00
Gates and Boxes	6,251 00
Lead, 54 tons at 84.00. Hemp packing, 2 tons at $140.00	4,500 00
Excavation and laying	38,700 00
Extra for rock excavation	10,000 00
Drayage, 3,500 tons at 75 cents	2,625 00
	$181,201 66

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID on low service from December 1, 1883, to December 1, 1884.

DATE.	STREET.	FROM STREET TO STREET.	4 Inch	6 Inch.	12 Inh	16 Inch	20 In	24 Inch	30 Inch.	36 In
Feb. 21,	Fourth.....	Franklin to Exchange....		445						
"	Franklin.....	North of Fourth street...	30							
Mch. 10,	St. Peter.....	Fourth to Sixth.....		484						
"	McBoal.....	Seventh to Forbes.....		170						
"	Leech.....	Smith to Goodrich ave....		832						
"	Smith.....	Seventh to Leech.....		170						
" 22,	Seventh.....	Leech to McBoal.....				855				
Apl. 22,	Prince.....	Broadway to Jackson.....		777						
" 23,	Mt. Airy.....	Mississippi to L. Orient...		290						
May 7,	Sixth.....	Fort to Pleasant ave.....		515						
" 12,	Douglas.....	South of Seventh.....		38						
"	Seventh.....	McBoal to Goodrich ave..				539				
"	Oak.....	Fifth to College ave.....		990						
"	College ave..	Oak to Rice.....		215						
" 13,	Broadway....	Seventh to Grove.....						1716		
" 14,	Grove.....	Crossing of Mississippi....					66			
June 21,	Mississippi...	Pennsylvania ave., to 100 feet north of Granite..		1212						
"	Acker.....	west of Mississippi st Main		22						
"	Genesee.....	" " "		22						
" 25,	Goodrich ave.	Seventh to Short line R. R.		1260						
July 9,	Robert.....	Second to Third.....		271						
" 12,	Mississippi...	Grove to Terminal Chamber.....							16350	18
Aug. 1,	Pleasant ave.	Sixth to Ramsey.....		937						
Sept. 10,	Ramsey.....	Leech to Pleasant ave.....		1342						
" 23,	Sixth.....	Franklin to Exchange....		430						
Oct. 1,	Cedar.....	Tenth to Tenth.....			122					
" 7,	Chesnut.....	Seventh to Exchange.....		375						
"	Exchange....	Third to Walnut.....	1037							
" 9,	William.....	Mississippi to 200 feet north of DeBow.....		525						
" 13,	Debow.....	Olmsted to William.....		750						
" 14,	Stillwater....	170 feet north of Olmsted.		170						
" 17,	Elm.....	Exchange to Short line R R	406							
"	Granite.....	167 feet west of Mississippi		167						
Nov. 6,	Minnesota....	Ninth to Tenth.....	445							
" 10,	John.....	Seventh to Eighth.....	312							
			2230	12409	122	1394	66	1716	15350	18

Total	4 inch....	2230
	6 inch....	12409
	12 inch....	122
	16 inch....	1394
	20 inch....	66
	24 inch....	1716
	30 inch....	16350
	36 inch....	18

34305 feet or 6 2625–5280 miles.

LOCATION, SIZE AND NO. OF FEET OF WATER PIPES LAID TO DECEMBER 1, 1884.

STREET.	FROM STREET TO STREET.	4 Inch.	6 Inch.	12 Inch	16 Inch.	20 In	24 Inch	30 Inch.	36 In
Acker	West of Mississippi st. Main.		22						
Beaumont	Bedford to De Sota		835						
Becker	Lafayette avenue to De Sota.		450						
Bedford	North to Minnehaha		1278						
Bradley	Woodward avenue to North.		1002						
Broadway	Manitoba R. R. to Grove	195	1716		1412		1741		
Bruno	East of Lafayette avenue		47						
Burr	Partridge to Farquier		2448						
Canada	Ninth to Fourteenth		1815						
Cedar	Third to College avenue		110	2567					
Chestnut	Seventh to Exchange		531						
College avenue	Cedar to Oak		1297						
Collins	Lafayette avenue to Bedford		991						
Cooper	Ninth to Norris	986							
DeBow	Grove to William		1710						
DeSota	Collins to Hopkins		425						
Douglas	Seventh to South		38						
Eighth	Cedar to Neill	4358							
Eleventh	Cedar to Olive	565	1259						
Elm	Exchange to Short Line R. R.	406							
Exchange	St. Peter to Wilkin	3454							
Fifth	Kittson to Third	4849	1378						
Forbes	Pleasant avenue to McBoal		1395						
Fort	Third to Tenth		1537						
Fourth	John to Exchange		5692						
Fourteenth	Jackson to Canada		950						
Franklin	Fourth to Sixth	200							
Genesee	West of Mississippi st Main		22						
Goodrich ave	Seventh to Short Line R. R.		1260						
Granite	West of Mississippi		167						
Grove	Monroe to Pearl	133	1584			66			
Hopkins	Desota to Bradley		700						
Jackson	Levee to Fifteenth	40	4587						
John	Fourth to Tenth	626	835						
Kittson	Fifth to Seventh		546						
Lafayette ave	Grove to Collins	205			2120				
Leech	Ramsey to Goodrich avenue		1102						
Levee	Sibley to Jackson	340							
Locust	Grove to Seventh				1025				
McBoal	Wilkin to Seventh		1034						
Market	Third to Fourth	250							
Minnesota	Third to Tenth	2187							
Mississippi	Grove to Terminal Chamber.		3888					16350	18
Monroe	Grove to Woodward avenue.	300							
Mt. Airy	Mississippi to Lorient		290						
Nash	Mississippi to De Bow		355						
Neill	Seventh to Eighth	325							
Ninth	Fort to Neill	980	4808						
Norris	Canada to Cooper	575							
North	Desota to Bedford		851						
Oak	College avenue to Walnut		2068						
Olive	Sixth to Grove	574							
Olmsted	Stillwater to DeBow		523						
Otsego	Lafayette to Mt. Ida		770						
Partridge	De Sota to Bradley	472							
Pearl	Jackson to Grove		1110						
Pine	Nine to Twelfth	593							
Pleasant ave	Ramsey to Sixth		3130						
Prince	Broadway to John		777						
Ramsey	Leech to Pleasant avenue		1342						
Rice	College ave. to Summit ave.		501						
Robert	Second to Twelfth		3470						
Rosabel	Third to Seventh		1401						
St. Paul	Grove to Olmsted	960							
St. Peter	*Fourth to Summit* avenue		2755						
Seventh	*Kittson to Goodrich* avenue		857	3640	5644				
Sherman	*Seventh to Bluff*		1051						

STREET.	FROM STREET TO STREET.	4	8	12	16	20	24	30	36
Sibley	Levee to Eighth	630	1450						
Sixth	Kittson to Pleasant avenue	4776	1376						
Smith	Seventh to Leech		170						
Somerset	Stillwater to De Bow	663							
Spruce	Cooper to Wacouta	400							
Stillwater	Grove to 150 ft. n. of Olmsted	910	220						
Temperance	Eighth to Thirteenth	688							
Tenth	Cottage avenue to Locust	2154	3118						
Third	Broadway to College avenue		6797						
Thirteenth	Jackson to De Bow	310	1040						
Twelfth	Robert to Pine	280	420						
Wabashaw	Third to Summit avenue		3362						
Wacouta	Third to Spruce	630	1210						
Walnut	Pleasant avenue to Exchange	1438							
Washington	Fifth to 300 ft. S. of Eagle	1446							
Waverly Place	Lafayette ave. to Stillwater		340						
Westminster	From Waverly Place North	605	75						
William	Miss. to 200 ft. E. of De Bow		525						
Willius	Fifth to Seventh	550							
Wilkin	Sherman to Bluff		1154						
Main Line	From Collins to Lake Phalon				15964		7000		
		39033	90067	6207	26165	66	8741	16350	18

Total, 4 inch.... 39033
6 inch.... 90067
12 inch.... 6207
16 inch.... 26165
20 inch.... 66
24 inch.... 8741
30 inch.... 16350
36 inch.... 18

186647 feet or 35 1847-5280 miles on low service.
9 3875-5280 miles on high service.

Total on high and low service, 45 442-5280 miles.

LOCATION, SIZE AND NO. OF FEET OF WATER PIPE LAID on St. Anthony Hill to December 1, 1884, on High Service.

STREET.	FROM STREET TO STREET.	6 Inch.	12 Inch	16 Inch	20 Inch.	24 Inch.
Suction Main	Terminal Chamber to Pump House					907
McCarron road	Pump House to Dale				6124	
Cut off Main	On Dale				1447	
Dale	McCarron road to Como avenue					9164
Como ave	Dale to Western avenue				3336	
Ashland	Western avenue to Dale	2640				
Dayton avenue	Summit avenue to Dale		4675			
Farrington	Summit avenue to Dayton avenue	1270				
Holly avenue	Western avenue to Dale	2640				
Laurel avenue	Western avenue to Dale	2640				
Makubin	Dayton avenue to North	192				
Nina avenue	Selby avenue to Laurel avenue	400				
St. Peter	Summit avenue to Martin	970				
Selby avenue	Summit to Western avenue	1335				
Summit avenue	Dayton avenue to Dale	2895	2628			
Topping	West from Como	72				
Western ave	Como avenue to Summit avenne		1775	6285		
		15054	9078	6285	10907	10071

Total, 6 inch....15054
12 inch.... 9078
16 inch.... 6285
20 inch....10907
24 inch....10071

51395 feet or 9 3875-5280 miles.

LIST OF HYDRANTS.

No.	Location.	Name of Hydrant.	Size of Pipe.
1	Woodward and Monroe	Holly	4
2	Grove and Lafayette	"	6
3	Westminister and Waverly	"	6
4	Westminister and Herkimer	"	4
5	Grove and St. Paul	"	6
6	Somerset and Stillwater	"	4
7	St. Paul and Somerset	"	4
8	De Bow and Somerset	"	6
9	Mississippi and Somerset	"	4
10	Grove and Mississippi	Mathews.	20
11	Pine and Eleventh	Holly.	4
12	Canada and Pearl	"	6
13	Canada and Spruce	"	6
14	Pearl in middle of block	"	6
15	Jackson and Pearl	Mathews.	6
16	Robert and Twelfth	"	6
17	Robert and Eleventh	Holly.	6
18	Minnesota and Eleventh	"	6
19	Cedar and Eleventh	Mathews.	6
20	Wabashaw and College avenue	"	6
21	Wabashaw and Tenth	"	6
22	St. Peter and Tenth	"	6
23	St. Peter and College avenue	"	6
24	St. Peter and Summit avenue	"	6
25	Tenth and College avenue	Holly.	6
26	Tenth between St. Peter and Fort	"	6
27	St. Peter and Exchange	Mathews.	6
28	Wabashaw and Exchange	"	6
29	St. Peter and Ninth	"	6
30	Wabashaw and Ninth	"	6
31	Jackson and Ninth	"	6
32	Cooper and Ninth	"	6
33	Rosabel and Ninth	"	6
34	Pine and Ninth	Holly.	6
35	John and Ninth	"	6
36	Locust and Ninth	Mathews.	6
37	Neill and Eighth	Holly.	4
38	Locust and Fifth	Mathews.	6
39	Olive and Eighth	Holly	4
40	Broadway and Eighth	Mathews.	6
41	Wacouta and Eighth	Holly.	4
42	Jackson and Eighth	Mathews.	6
43	Robert and Eighth	Holly.	4
44	Burr and Partridge	"	6
45	Burr and Hopkins	"	6
46	Hopkins and De Sota	"	6
47	Oak and Third	Mathews.	6
48	Pleasant and Third	"	6
49	College avenue and Third	Holly.	6
50	Exchange and Sherman	"	4
51	Walnut and Exchange	"	4
52	Sherman aud West Seventh	Mathews.	6
53	West Seventh and Walnut	Holly.	12
54	Chestnut and West Seventh	Mathews.	6
55	West Seventh between Third and Chestnut	Holly.	12
56	Seven Corners	Mathews.	12
57	Seventh back of Winslow House	"	12
58	Seventh and Fifth	"	12
59	Franklin and Seventh	"	12
60	Seventh and Sixth	"	12
61	St. Peter and Seventh	Holly.	12
62	Wabashaw and Seventh	"	16

No.	Location.	Name of Hydrant.	Size of Pipe.
63	Cedar and Seventh	Mathews.	12
64	Minnesota and Seventh	"	16
65	Robert and Seventh	"	16
66	Jackson and Seventh	"	16
67	Sibley and Seventh	"	16
68	Wacouta and Seventh	"	16
69	Rosabel and Seventh	"	16
70	Broadway and Seventh	"	16
71	Pine and Seventh	Holly.	16
72	Olive and Seventh	"	16
73	John and Seventh	"	16
74	Locust and Seventh	"	16
75	Neill and Seventh	"	6
76	Willius and Sixth	"	4
77	Pine and Sixth	Mathews.	4
78	Jackson and Sixth	"	6
79	Robert and Sixth	"	6
80	Minnesota and Sixth	Holly.	4
81	Wabashaw and Sixth	"	6
82	Washington and Fifth	Mathews.	4
83	Wabashaw and Fifth	"	6
84	Cedar and Fifth	"	4
85	Minnesota and Fifth	"	4
86	Robert and Fifth	Holly.	6
87	Jackson and Fifth	Mathews.	6
88	Sibley and Fourth	Holly.	6
89	Jackson and Fourth	Mathews.	6
90	Robert and Fourth	"	6
91	Minnesota and Fourth	"	6
92	Wabashaw and Fourth	"	6
93	Washington and Fourth	Holly.	4
94	Exchange and Third	Mathews.	6
95	Third between Exchange and Franklin	"	6
96	Franklin and Third	"	6
97	Washington and Third	"	6
98	Market and Third	"	6
99	Washington and Eagle	Holly.	4
100	St. Peter and Third	Mathews.	6
101	Wabashaw and Third	"	6
102	Cedar and Third	"	12
103	Minnesota and Third	"	6
104	Robert and Third	"	6
105	Jackson and Third	"	6
106	Sibley and Third	"	6
107	Jackson and Levee	Holly.	6
108	Jackson and Tenth	"	6
109	Jackson and Eleventh	"	6
110	Sibley and Levee	"	4
111	St. Peter and Fifth	Mathews.	6
112	Robert and Ninth	Holly.	6
113	Wacouta and Tenth	Mathews.	4
114	Mississippi and Nash	"	6
115	Broadway and Twelfth	"	6
116	Broadway and Tenth	"	6
117	Elm and Franklin	"	4
118	Cedar and Ninth	"	6
119	St. Peter and Fourth	"	6
120	Cedar and Sixth	Holly.	4
121	Franklin and Fourth	Mathews.	6
122	West Seventh and Leech	Holly.	12
123	Stillwater and Grove	"	6
124	De Bow and Grove	"	6
125	Canada and Tenth	"	6

No.	Location.	Name of Hydrant.	Size of Pipe.
126	Wacouta and Ninth	Holly.	6
127	Eighth and Temperance	Mathews.	4
128	Seventh and Willius	"	6
129	Seventh and Kittson	"	6
130	Ramsey and Leech	Holly.	6
131	Collins and Lafayette	Mathews.	6
132	Sibley and Sixth	"	6
133	Willius and Fifth	Holly.	4
134	Willius and Eighth	"	4
135	Cooper and Tenth	"	4
136	Pleasant between Third and Chestnut	"	6
137	Pleasant and Chestnut	"	6
138	Pleasant and Walnut	"	6
139	Oak between Third and Chestnut	"	6
140	Fort street, 150 feet south of Tenth	"	6
141	Fort and Ninth	"	6
142	Fort and Sixth	"	6
143	Fort and Fifth	"	6
144	Canada and Thirteenth	"	6
145	Thirteenth between Canada and Temperance	"	6
146	Thirteenth at head of Temperance	"	6
147	Mississippi and Mt. Airy	Mathews.	6
148	Mississippi and Glencoe	"	6
149	Mississippi 200 feet south of Pennsylvania avenue	"	6
150	Mississippi and Pennsylvania avenue	Holly.	6
151	De Bow and Nash	"	6
152	Olmsted and Debow	"	6
153	Olmsted and St. Paul	"	6
154	Olmsted and Stillwater	"	6
155	Ninth and Exchange	"	6
156	Ninth and Franklin	Mathews.	6
157	Wabashaw and Summit avenue	Holly.	6
158	Robert and Tenth	"	6
159	Canada and Norris	"	6
160	Norris and Cooper	"	4
161	Spruce and Wacouta	"	4
162	Spruce at head of Cooper	"	4
163	College avenue 300 feet west of St. Peter	"	6
164	Fourth and Wacouta	"	6
165	Fifth aud Sibley	"	6
166	Walnut and Oak	"	4
167	Fourth and Rosabel	"	6
168	South side of Third street on Broadway at railroad	"	4
169	Third and Broadway	Mathews.	6
170	Third and Rosabel	"	6
171	Third and Wacouta	"	6
172	Rice and Summit	Holly.	6
173	Fourth and Market	Mathews.	6
174	Collins and Bedford	Holly.	6
175	Collins and Burr	Mathews.	6
176	Tenth and Pine	Holly.	6
177	Tenth and Olive	"	6
178	Tenth and John	"	6
179	Fourteenth and Canada	"	6
180	Fourteenth between Canada and Jackson	"	6
181	Partridge and Bradley	"	4
182	Fourth and Broadway	Mathews.	6
183	Exchange and Sixth	Holly.	4
184	Burr and North	"	6
185	North and Desoto	"	6
186	Fifth and Rosabel	Mathews.	6
187	Sixth and Rosabel	Holly.	6
188	Pleasant and Sherman	"	6

No.	Location.	Name of Hydrant.	Size of Pipe.
189	Fourth and Jackson	Mathews.	6
190	John and Fourth	"	6
191	John and Fifth	"	6
192	John and Sixth	"	6
193	Bruno and Lafayette	"	6
194	Lafayette and St. Paul M. M. Rrilroad	"	16
195	Lafayette avenue and Becker	"	6
196	Pleasant avenue and Sixth	"	6
197	Jackson and Thirteenth	"	6
198	Jackson and Fourteenth	"	6
199	Wilken and McBoal	"	6
200	Wacouta and Third	"	6
201	McBoal and Leech	"	6
202	Wacouta and Sixth	"	6
203	Wacouta and Fifth	"	6
204	Fifth and Broadway	"	4
205	Sixth and Broadway	"	4
206	Tenth and Minnesota	"	6
207	Tenth and Cedar	"	6
208	Jackson and Fifteenth	"	6
209	Cedar and Eighth	"	12
210	Cedar and Exchange	"	12
211	Ninth and Minnesota	"	6
212	Wilkin and Smith	"	6
213	Fifth and Neill	"	6
214	Kittson and Fifth	"	6
215	Kittson and Sixth	"	6
216	Sixth and Neill	"	4
217	Otsego and Mt. Ida	"	6
218	Bradley and Woodward	"	6
219	Bradley and North	"	6
220	Hopkins and Bradley	"	6
221	Oak and Chestnut	"	6
222	Bedford and Beaumont	"	6
223	Bedford and Minnehaha	"	6
224	Forbes and Pleasant	"	6
225	Forbes and Ramsey	"	6
226	Forbes and Smith	"	6
227	Fourth and Cedar	"	6
228	Eighth and Minnesota	"	4
229	Beaumont and Bradley	"	6
230	Beamont and De Soto	"	6
231	Burr and Beaumont	"	6
232	Burr and Minnehaha	"	6
233	Burr and Farquier	"	6
234	Forbes and West Seventh	"	6
235	Fourth and Pine	"	6
236	Fourth and Olive	"	6
237	Smith and West Seventh	"	6
238	Fourth and Exchange	"	6
239	McBoal and West Seventh	"	6
240	St. Peter and Sixth	"	6
241	Prince and Pine	"	6
242	Prince and Olive	"	6
243	Prince and John	"	6
244	Mt. Airy and L. Orient	"	6
245	Oak and Fifth	"	6
246	Oak and Sixth	"	6
247	Oak and College avenue	"	6
248	Douglas and West Seventh	"	6
249	Goodrich and West Seventh	"	6
250	Goodrich and Forbes	"	6
251	Goodrich and Leech	"	6
252	Acker and Mississippi	"	6
253	Genesee and Mississippi	"	6

No.	Location.	Name of Hydrant.	Size of Pipe.
254	Granite and Mississippi	Mathews.	6
255	Robert and Second	"	6
256	Pleasant and Ramsey	"	6
257	Ramsey head of Douglas	"	6
258	Sherman and Franklin	"	6
259	Chestnut and Exchange	"	6
260	Exchange and Eagle	"	4
261	William and DeBow	"	6
262	De Bow street 200 feet south of Willlam	"	6
			High Service.
263	Topping and Como avenue	"	6
264	Neurer and Western avenue	"	6
265	Blair and Western	"	6
266	Thomas and Western	"	6
267	University and Western ave	"	12
268	Aurora avenue and Western	"	6
269	Fuller and Western	"	6
270	Martin and Western	"	6
271	St. Anthony and Western	"	6
272	Rondo and Westeln	"	6
273	Carroll and Western	"	6
274	Iglehart and Western	"	6
275	Marshall and Western	"	6
276	Dayton and Western	"	12
277	Western and Selby avenue	"	12
278	Western and Laurel	"	12
279	Western and Ashland	"	12
280	Western and Holly avenue	"	12
281	Western and Portland	"	12
282	Summit and Portland	"	12
283	Summit and Arundel	"	12
284	Summit and Makubin	"	12
285	Summit and Kent	"	12
286	Summit and Kent	"	12
287	Holly and Dale	"	6
288	Holly and Kent	"	6
289	Holly and Makubin	"	6
290	Holly and Arundel	"	6
291	Ashland and Arundel	"	6
292	Ashland and Makubin	"	6
393	Ashland and Kent	"	6
294	Ashland and Dale	"	6
295	Laurel and Dale	"	6
296	Laurel and Kent	"	6
297	Laurel and Makubin	"	6
298	Laurel and Arundel	"	6
299	Dayton and Dale	"	12
300	Dayton and Kent	"	12
301	Dayton and Makubin	"	12
302	Dayton and Arundel	"	12
303	Dayton and Virginia avenue	"	12
304	Dayton and Farrington	"	12
305	Dayton between Summit and Farrington	"	12
306	Summit and Dayton	"	6
307	Summit and Selby	"	6
308	Summit head of Walnut	"	6
309	Summit and Nina avenue	"	6
310	Summit and Farrington	"	6
311	Summit and Virginia	"	6
312	Farrington and Laurel	"	6
313	Farrington and Selby	"	6
314	Selby head of Nina	"	6
315	Nina avenue and Laurel	"	6

101 Holly Hydrants
214 Matthews Hydrants.
26 On low service, placed this year.
53 on high service, " "
315 Total *Fire Hydrants.*

LIST OF STREET SPRINKLING HYDRANTS.

No.	Location.	Name of Hydrant.	Size of Pipe.
1	Sixth and Jackson	Holly.	2
2	Fifth and Wacouta	"	"
3	Wacouta and Third	"	"
4	Fort and Third at 7 corners	"	"
5	Third and Jackson	"	"
6	Minnesota and Third	"	"
7	Fifth and Robert	"	"
8	Robert and Seventh	"	"
9	Wacouta and Seventh	"	"
10	Ninth and Cedar	"	"
11	Eighth and Broadway	"	"
12	John and Seventh	"	"
13	Walnut and Seventh	"	"
14	Kittson and Seventh	"	"
15	Ninth and St. Peter	"	"
16	Pine and Tenth	"	"
17	DeBow and Grove	"	"
18	Waverly Place and Westminster	"	"
19	Leech and Seventh	"	"
20	Broadway and Fourth	"	"
21	Cedar and Seventh	"	"
22	College Avenue and Wabasha	"	"
23	College Avenue and Tenth	"	"
24	Pleasant Avenue and Third	"	"
25	Fourth and St. Peter	"	"
26	Franklin and Fourth	"	"
27	Goodrich and Seventh	"	"
28	Eleventh and Robert	"	"
29	Mt. Airy and Mississippi	"	"
30	Burr and Collins	"	"
31	Bradley and Woodward	"	"
32	Martin Street and Western Avenue	"	"
33	Western and Dayton	"	"
34	Holly and Western	"	"
35	Farrington and Summit	"	"

Seven Street Sprinkling Hydrants placed in service this season on low service.
Four Street Sprinkling Hydrants on high service.
Making a total of Street Sprinkling Hydrants, 35.

LOCATION AND SIZE OF VALVES.

Street.	Location.	Size.								
		3	4	6	12	16	20	24	30	36
Acker	W. line of Mississippi			1						
Beaumont	W. line of Bedford			1						
Becker	S. line of Lafayette ave.			1						
Bedford	N. line of North			1						
Bradley	N. line of Partridge			1						
Broadway	Blow off at Ninth			1						
Broadway	N. line of Seventh			2						
Broadway	S. line of Grove			2						
Broadway	Blow off N. line of Third	1								
Broadway	N. line of Third					1				
Broadway	S. line of Seventh					1				
Bruno	S. line of Lafayette ave.			1						

STREET.	LOCATION.	3	4	6	12	16	20	24	30	36
Burr	S. line of North			1						
Burr	S. line of Hopkins			1						
Burr	N. line of Collins			1						
Burr	N. line of Beaumont			1						
Canada	N. line of Ninth			1						
Canada	S line of Pearl			1						
Canada	N. line of Pearl			1						
Cedar	Blow off at Sixth	1								
Cedar	N. line of Third				1					
Cedar	S. line of Seventh				1					
Cedar	N. line of Seventh				1					
Cedar	Blow off at Eighth	1								
Cedar	S. line of Tenth				1					
Chestnut	E. line of Seventh			1						
College ave	W. line of St. Peter			1						
College ave	E. line of Wabashaw			1						
College ave	W. line of Wabashaw			1						
College ave	W. line of Tenth			1						
Collins	E. line of Lafayette			1						
Collins	W. line of Bedford			1						
Cooper	N. line of Ninth		1							
Cooper	N. line of Tenth		1							
Cooper	N. line of Spruce		1							
De Bow	S. line of Olmsted			1						
De Bow	N. line of Grove			1						
De Bow	S. line of William			1						
De Bow	N. line of Olmsted			1						
Desota	S. line of Collins			1						
Douglas	S. line of Seventh			1						
Eighth	W. line of Locust		1							
Eighth	E. line of Locust		1							
Eighth	E. line of Broadway		2							
Eighth	W. line of Broadway		2							
Eighth	W. line of Jackson		1							
Eighth	E. line of Cedar		1							
Eighth	W. line of Cooper		1							
Eleventh	E. line of Broadway		2							
Eleventh	W. line of Jackson			1						
Eleventh	W. line of Robert			1						
Eleventh	E. line of Cedar			1						
Elm	E. line of Exchange		1							
Exchange	S. line of Eagle		1							
Exchange	S. line of Chestnut		1							
Exchange	N. line of Sherman		1							
Exchange	N. line of Seventh		1							
Exchange	W. line of St. Peter		1							
Exchange	S. line of Ninth		1							
Exchange	E. line of Wilkin		1							
Fifth	E. line of Jackson		1							
Fifth	W. line of Jackson		1							
Fifth	E. line of Minnesota		1							
Fifth	E. line of Oak		1							
Fifth	E. line of Cedar		1							
Fifth	E. line of Wabasha		1							
Fifth	W. line of Wabasha			1						
Fifth	W. line of St. Peter		1							
Fifth	W. line of Washington		1							
Fifth	W. line of Cedar		1							
Fifth	E. line of Sibley		1							
Fifth	W. line of Broadway		1							
Fifth	E. line of John			1						
Fifth	W. line of Willius			1						
Fifth	W. line of Neill			1						
Fifth	W. line of Rosabel		1							

STREET.	LOCATION.	3	4	6	12	16	20	24	30	36
Fifth	E. line of Fort		1							
Forbes	N. line of Smith			1						
Forbes	N. line of Ramsey			1						
Forbes	N. line of Seventh			1						
Forbes	S. line of Seventh			1						
Fourteenth	E. line of Jackson			1						
Fourteenth	W line of Canada			1						
Fourth	S. line of Franklin			1						
Fourth	W. line of Broadway			1						
Fourth	W. line of Rosabel			1						
Fourth	W. line of Wacouta			1						
Fourth	S. line of Jackson			1						
Fourth	W. line of Jackson			1						
Fourth	W. line of Wabasha			1						
Fourth	W. line of Market			1						
Fourth	E. line of Cedar			1						
Fourth	E. line of Minnesota			1						
Fourth	W. line of Cedar			1						
Fourth	E. line of Broadway			1						
Fourth	E. line of Olive			1						
Fort	N. line of Sixth			1						
Fort	S. line of Tenth			1						
Fort	N. line of Fourth			1						
Franklin	N. line of Seventh		1							
Franklin	N. line of Fourth		1							
Genesee	W. line of Mississippi			1						
Goodrich	E. line of Seventh			1						
Granite	W. line of Mississippi			1						
Grove	Blow-off W. of Miss		1							
Grove	On hydrant W. of Miss		1							
Grove	W. line of Lafayette			1						
Grove	W. line Miss. one on center Miss.						2			
Hopkins	E. line of DeSoto			1						
Hopkins	W line of Bradley			1						
Jackson	Blow off at Levee	1								
Jackson	N. line of Levee		1							
Jackson	S. line of Fourth			1						
Jackson	N. line of Seventh			1						
Jackson	S. line of Seventh			1						
Jackson	N. line of Eighth			1						
Jackson	N. line of Ninth			1						
Jackson	S. line of Twelfth			1						
Jackson	N. line of Pearl			1						
Jackson	S. line of Fourteenth			1						
John	S. line of Tenth		1							
John	S. line of Seventh			1						
John	N. line of Fifth			1						
John	N. line of Fourth			1						
John	N. line of Seventh		1							
Kittson	S line of Seventh			1						
Kittson	N. line of Fifth			1						
Lafayette ave.	S. line of Collins					1				
Lafayette ave.	At bridge on hydrant		1							
Lafayette ave.	End of retaining wall		1							
Lafayette ave.	Blow off gate	1								
Leech	N. line of Seventh			1						
Leech	N. line of Goodrich ave.			1						
Leech	N. line of McBoal			1						
Locust	N. line of Seventh					1				
McBoal	E. line of Seventh			1						
McBoal	E. line of Forbes			1						
McBoal	W. line of Wilkin			1						
Market	N. line of Third		1							
Minnesota	N. line of Third		1							

STREET.	LOCATION.	3	4	6	12	16	20	24	30	36
Minnesota....	S. line of Fifth		1							
Minnesota....	S. line of Seventh.....		1							
Minnesota....	N. line of Seventh		1							
Minnesota....	S. line of Tenth.....		1							
Mississippi...	N. line of Grove			2					1	
Mississippi...	N. line of Nash.....			1						
Mississippi...	N. line of Glencoe.....			1						
Mississippi...	N. line of Grove, blow-off			1						
Mississippi...	S. line of Cayuga.....			2						
Mississippi...	S. line of Minnehaha			2						
Mississippi...	Blow-off N. line of St. P. M. & M. R. R.....			1						
Mississippi...	N. line of M. R. R.....			2						
Mississippi...	S. line of Acker.....								1	
Mississippi...	Blow-off at Trout Brook.			1						
Mississippi...	Blow-off at Cook.....			1						
Mississippi...	W. line of Cook								1	
Mississippi...	Blow-off at creek N. of Maryland ave.....			1						
Mississippi...	Blow off 200 ft. S. E. of Como and Phalen av ..			1						
Mississippi...	S. line of Como and Phalen ave								1	
Mississippi ..	S. line of Como and Phalen ave. blow off.....			1						
Miss.....	2.000 ft. N. of Como and Phalen ave. blow off			1						
Miss.....	At reservoir and pumping station.....								1	
Miss.....	Blow off N. of last mentioned Thirty in-gate..			1						
Nash.....	W. line of Mississsppi...			1						
Nash.....	E. linc of Mississippi....			2						
Neill.....	N. line of Seventh.....		1							
Ninth.....	E. line of Locust.....		1							
Ninth.....	W. line of Locust.....			1						
Ninth.	E. line of Broadway.....			2						
Ninth.....	W. line of Broadway....			2						
Ninth	W. line of Jackson.....			1						
Ninth...	W. line of St. Peter.....			1						
Ninth.....	E. line of Fort.....			1						
Ninth.	E. line of Wabashaw....		1							
Ninth.....	E. line of Cedar.....			1						
Ninth	W. line of Cedar			1						
Ninth	E. line of Minnesota.....			1						
Ninth	W. line of Cooper.....			1						
Norris.....	W. line of Canada.....		1							
North.	W. line of Bradley.....			1						
Oak.....	N. line of Sixth.....			1						
Oak.....	N. line of Third.....			1						
Oak.....	S. line of Third.....			1						
Oak.....	N. line of Walnut.....			1						
Olive.....	S. line of Seventh.....		1							
Olive.....	S. line of Grove.....		1							
Otsego	N. line of Lafayette.....			1						
Partridge.....	W. line of Bradley.....		1							
Pearl.....	F. line of Jackson.....			1						
Penna. Ave..	E. line of Mississippi....			1						
Penna. Ave..	W. line of Mississipp...			1						
Pine	N. line of Ninth.....		1							
Pleasant Ave	W. line of Forbes.....			1						
Pleasant Ave	N. line of Walnut.....			1						
Pleasant Ave	S. line of Third.....			1						
Pleasant Ave	N. line of Thi;d.....			1						

STREET.	LOCATION.	3	4	6	12	16	20	24	30	36
Prince	E. line of Broadway			1						
Ramsey	S. line of Pleasant ave			1						
Ramsey	N. line of Forbes			1						
Robert	S. line of Third			1						
Robert	N. line of Third			1						
Robert	N. line of Fourth			1						
Robert	N. line of Fifth			1						
Robert	N. line of Seventh			1						
Robert	S. line of Seventh			1						
Robert	N. line of Eight			1						
Robert	S. line of Eleventh			1						
Robert	N. line of Ninth			1						
Robert	S. line of Twelfth			1						
Rosabel	S. line of Fourth			1						
Rosabel	N. line of Fifth			1						
Rosabel	S. line of Seventh			1						
St Paul	S. line ofOlmstead		1							
St. Paul	N. line of Grove		1							
St. Peter	S. line of Tenth			1						
St. Peter	N. line of Seventh			1						
St. Peter	N. line of Fourth			1						
St. Peter	S. line of Sixth			1						
St. Peter	Dividing line of high and low sewer			1						
Seventh	E. line of Locust			1						
Seventh	W. line of Jackson					1				
Seventh	Blow off at Robert Sts	3								
Seventh	E. line of St. Peter				1					
Seventh	E. line of Third				1					
Seventh	E. line of Broadway					1				
Seventh	W. line of Broadway					1				
Seventh	W. line of Kittson			1						
Seventh	Blow off at Walnut St	1								
Seventh	S. line of Third				1					
Seventh	N. line of Ramsey				1					
Seventh	S. line of Leech				1					
Seventh	S. line of McBoal									
Sherman	S. line of Exchange			1		1				
Sherman	E. line of Wilkin			1						
Sherman	E. line of Seventh			1						
Sibley	S. line of Third		1							
Sibley	N. line of Third			1						
Sibley	S. line of Fifth			1						
Sibley	S. line of Seventh			1						
Sibley	N. line of Seventh		1							
Sixth	W. line of Fort			1						
Sixth	W. line of Oak			1						
Sixth	E. line of Exchange			1						
Sixth	E. line of Olive		1							
Sixth	W. line of Jackson		1							
Sixth	E. line of Minnesota		1							
Sixth	E. line of Cedar		1							
Sixth	E line of Fort			1						
Sixth	E. line of Wabasha		1							
Sixth	W. line of Willius		1							
Sixth	E line of John		1							
Sixth	W. line of Cedar		1							
Sixth	E. line of Jackson		1							
Sixth	W. line of Neill		1							
Sixth	E. line of Sibley		1							
Sixth	N. line of Rosabel		1							
Sixth	E. line of Broadway		1							
Sixth	W. line of Kittson		1							
Sixth	N. line of Broadway		1							

STREET.	LOCATION.	3	4	6	12	16	20	24	30	36
Smith	E. line of Seventh			1						
Stillwater	N. line of Grove		1							
Stillwater	S. line of Olmsted			1						
Stillwater	N. line of Olmsted			1						
Temperance	N. line of Eighth		1							
Temperance	N. line of Pearl		1							
Tenth	S. line of College ave			1						
Tenth	W. line of St. Peter			1						
Tenth	E. line of St. Peter			1						
Tenth	E. line of Broadway			2						
Tenth	W. line of Canada		1							
Tenth	E. line of Jackson		1							
Tenth	E. line of Wabasha		1							
Tenth	W. line of Locust			1						
Tenth	E. line of Cedar			1						
Tenth	W. line of Robert			1						
Tenth	W. line of Jackson		1							
Tenth	W. line of Broadway		2							
Third	Bet. Cedar and Minnesota			1						
Third	W. line of Jackson			1						
Third	E. line of Jackson			1						
Third	E. line of Wacouta			2						
Third	W. line of Broadway			1						
Third	S. line of Seventh			1						
Third	N. line of Fort			1						
Third	E. line of St. Peter			1						
Third	W. line of Washington			1						
Thirteenth	W. line of Debow		1							
Thirteenth	W. line of Canada			1						
Thirteenth	E. line of Jackson			1						
Thirteenth	E. line of Mississippi			2						
Thirteenth	W. line of Mississippi			1						
Twelfth	E. line of Broadway		2							
Wabasha	N. line of College ave			1						
Wabasha	N. line of Ninth			1						
Wabasha	N. line of Seventh			1						
Wabasha	N. line of Third			1						
Wabasha	S. line of Fifth			1						
Wacouta	S. line of Seventh		1							
Wacouta	N. line of Tenth		1							
Wacouta	N. line of Third			1						
Wacouta	S. line of Fifth			1						
Wacouta	S. line of Sixth			1						
Walnut	E. line of Seventh		1							
Walnut	W. line of Seventh		1							
Walnut	E. line of Pleasant ave		1							
Washington	S. line of Third		1							
Washington	N. line of Third		1							
Washington	N. line of Fourth		1							
Waverly place	N. line of Lafayette			1						
Waverly place	E. line of Stillwater			1						
William	E. line of Mississippi			2						
Willius	S. line of Seventh		1							
Willius	N. line of Fifth		1							
Wilkin	N. line of Smith			1						
24 inch main at Gate Houes								1		
24 inch main at Plow Works							1	1		
24 in main Blow-off near RR Plow Wks				1						
24 in main Relief Valve, near " "				1						
16 in main at Gate House,							1			
16 in main at Creek at Havester Works						1				
16 in main at Plow Works						1				

STREET.	LOCATION.	3	4	6	12	16	20	24	30	36
16 in main, 7th St and Phalen Creek...						1				
16 in main, Payne and Ross.....						1				
16 iu main, 7th & Phalen Cr Blow-off.		1								
16 in main, Forrest & Cypress Blow-off		1								
16 in main, North line of Arcade		1								
		10	101	206	9	12	4	4	5	1

Total number of valves on low service..... 352
Total number of valves on high servic ,..... 70

On high and low service..... 422

LOCATION AND SIZE OF VALVES ON HIGH SERVICE.

STREET.	LOCATION.	SIZE.							
		3	4	6	12	16	20	24	30
Suction main.	From terminal chamber.....							1	
Suction main.	From reservoir							1	
Suction main.	Blow-off from term. chamber			1					
Forced main..	S. of pumping station.....						1		
Forced main..	Blow-off E. of McCarron Lake			1					
McCarron road	S. of McCarron Lake.....						1		
McCarron road	Blow-off S. of McCarron Lake			1					
McCarron road	For reservoir.....						1		
Cut-off main..	S. of McCarron road						1		
Cut-off main..	Blow-off S. of McCarron road			1					
Cut-off main..	N.E. of Dale street						1		
Dale	For reservoir.....							1	
Dale.....	Blow-off S. of cut-off main..			1					
Dale.....	Blow-off at cemetery.....			1					
Dale.....	N. line of Phalen and Como av							1	
Dale.....	Blow-off N. line of Como av.			1					
Dale.....	N. line of Como av.....							1	
Ashland.....	W. line of Western av			1					
Ashland.....	E. line of Mackubin st.....			1					
Ashland.....	E. line of Dale street.....			1					
Aurora.....	W. line of Western av			1					
Blair.....	W. line of Western av			1					
Carroll.....	W. line of Western av			1					
Como	E. line of Dale st.....						1		
Como	S. line of Topping.....						1		
Como	Blow-off at Cuthbert.....			1					
Como	W. line of Western av						1		
Dayton.....	W. line of Summit av.....				1				
Dayton.....	E. line of Western av.....				1				
Dayton.....	W. line of Western av				1				
Dayton.....	E. line of Mackubin st.....				1				
Dayton.....	E. line of Dale st..				1				
Farrington....	N. line of Summit av.....			1					
Farrington ...	N. line of Laurel av.....			1					
Farrington ...	S. line of Dayton av.....			1					
Fuller	W. line of Western av			1					
Holly.....	W. line of Western av.....			1					
Holly.....	E. line of Mackubin st			1					
Holly	E. line of Dale.....			1					

STREET.	LOCATION.	3	4	6	12	16	20	24	30
Iglehart	W. line of Western av			1					
Laurel	W. line of Western av			1					
Laurel	E. line of Mackubin st			1					
Laurel	E. line of Dale st			1					
Makubin	N. line of Dayton av			1					
Marshall	W. line of Western av			1					
Martin	W. line of Western av			1					
Neurer	W. line of Western av			1					
Rondo	W. line of Western av			1					
St. Anthony	W. line of Western av			1					
St. Peter	S. line of Iglehart			1					
St. Peter	S. line of Tilton			1					
Selby	N. line of Nina av			1					
Selby	W. lina of Summit av			1					
Summit	S. line of Dayton av			1					
Summit	N. line of Nina av			1					
Summit	E. line of Western av			1					
Summit	E. line of Mackubin st				1				
Summit	Blow-off at Oakland av	1							
Thomas	W. line of Western av			1					
Topping	W. line of Como av			1					
University	W. line of Western av				1				
Western	S. line of Como av					1			
Western	N. line of Lefond					1			
Western	N. line of University av					1			
Western	N. line of Rondo st					1			
Western	N. line of Dayton av					1			
Western	S. line of Dayton av				1				
Western	S. line of Holly av				1				
Western	Blow-off S. line of Holly	2							
		3	....	40	9	5	8	5	....

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1884.

132 feet 30-inch pipe.
144 " 24 "
407 " 20 "
2796 " 16 "
12 " 12 "
240 " 6 "
1428 " 4 "
144 " 3 "
7 30-inch curvature pipe.
1 24 " "
1 20 " "
6 16 " "
6 6 " "
16 4 " "
8 6-inch ¼ bends.
4 4 " "
1 30-inch sleeve.
2 24 " "
2 20 " "
2 16 " "
3 12 " "
24 6 " "
14 4 " "
1 20-inch plug.
1 16 " "
9 12 " "
45 6 " "
38 4 " "

3 hand-axes.
7 heavy blasting chains.
335 heavy blasting timbers.
5 pair from 12 to 30-inch chains.
26 sand-rock picks.
19 buckets.
5 dirt rammers.
2 paving rammers.
46 pick and sledge handles.
3 pipe scrapers.
8 wheelbarrows.
2 pair grab tongs.
2 hoisting buckets.
4 plug and feather drills.
1 set plug and feathers.
12 steel crowbars.
2 pipe bars.
4 pipe rammers.
13 rock drills.
9 steel sledge hammers.
5 striking hammers.
10 scrapers.
9 tamping bars.
9 jumpers.
9 rock wedges.
1 puddling bar and wrench.
1 grindstone.
12 set of caulking tools.

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1884.

2 6-inch hoods.
4 4 " "
11 30x6 4-way branches.
3 20x6 3 " "
8 16x12 4 " "
4 16x6 4 " "
7 16x6 3 " "
5 16x4 3 " "
1 12x6 4 " "
1 12x6 3 " "
1 12x4 3 " "
8 6x6 4 " "
3 6x4 4 " "
2 6x4 3 " "
15 6x3 3 " "
5 4x3 3 " "
reducer, from 6 to 4 inches.
47473 pounds pig lead.
525 pounds hemp packing.
2 cans blasting powder.
100 feet fuse.

Gate and Gate Duplicates.

1 20-inch gate.
3 16 " "
1 12 " "
8 6 " "
23 4 " "
18 3 " "
1 3 " " for wrought iron pipe.
1 2½ " " " " "
1 2 " " " " "
6 1½ " " " " "
8 1¼ " " " " "
46 Bigham & Morgan iron gate boxes complete.

Duplicate for Gates.

2 16-inch gate stems.
1 6 " "
10 4 " "
2 3 " "
1 16-inch nut and wedge.
3 4 " "
1 3 " "
3 4-inch gate faces.
1 4-inch doubled faced.
6 nuts for top of gate.

Hydrants and Hydrant Duplicates.

11 Mathew hydrants complete.
2 " " incomplete.
15 Holly sprinkling hydrants.
1 steamer for thawing hydrants.
1 lot of miscellaneous duplicates for Mathew hydrants.
1 kit of miscellaneous duplicates for Holly sprinkling hydrants.
1 lot of tools for repairing hydrants.
2 drip boxes for hydrants.
8 hydrant wrenches.

Pipe Laying and Trenching Tools.

8 lead ladles.
9 lead pots.
7 furnaces.
6 tool boxes.
4 yards blue clay.
1 Edison diaphram wrecking pump and suction.

Connection Stock and Tools.

1200 feet from ½ to 2-inch galvanized iron pipe.
1 platform scale.
1 lot of iron pipe fittings from ½ to 4 inches.
6648 pounds lead pipe from ½ to 1½ inches.
¾ box of candles.
½ barrel kerosene oil.
⅓ gallon lard oil.
10 pounds horse-shoe nails.
1 pipe vise.
1 blacksmith's vise.
1 force pump.
1 dripped pump.
1 sand pump.
1 set stocks and dies from ¼ to 1 inch.
1 set numbering dies.
2 wrought iron cutters.
11 pair tongs from ½ to 2 inches.
1 oil stone.
1 crowfoot and rachet.
1 set taps and drills from ⅝ to 2 inches.
1 brace.
1 kit of plumber's tools complete.
2 Mueller tapping machines complete.
5 poles for setting stop boxes.
1 clay auger.
1 sand auger.
6 rods for turning on and off water.
2 set 4-inch cement pipe moulds.
362 feet 4-inch cement pipe for stop boxes.
70 Bingham & Morgan stop boxes.
93 corporation taps from ⅝ to 1 inch.
30 pounds solder.
4 barrels cement.

Miscellaneous and Stable Accounts.

3 horses.
1 truck.
1 large truck for from 24 to 30-inch pipe.
1 buggy.
1 bob sleigh.
1 cutter.
2 set single harness.
6 horse blankets.
1 buffalo robe.
3 whips.
1 feed box.
3 pitchforks.
1 wagon jack.
5 bushels oats.
3 bushels corn.
½ ton hay.
1 anvil.
35 pounds 20-penny nails.
60 pounds 8-penny nails.
1 farmers kettle.
1 truck skid.
1000 sewer brick.
1 drawing knife.

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1884.

4 derricks.
4 pair tackle block and fall.
1 windlass.
¼ coil of inch rope.
1 tunnel pipe truck.
7 gate wrenches.
1 pair rubber mitts.
6 pair rubber boots.
4 hand-saws.
2 buck-saws.
20 tubular lanterns.
13 oil-cans.
9 monkey wrenches.
80 D. handled round-mouthed shovels.
129 picks.
6 axes.
2 set branding irons.
1 2-inch framing chisel.
2 1-gallon measures.
1 funnel.
4 mason trowels.
3 levels.
1 manhole frame and two covers.
75 feet ½-inch hose.
2 sections of 2½-inch hose.
2 wall tents.
1 scrape shovel.

Meter Account.

21 meters from ½ to 2 inches.
1 3-inches in bad order.

ST. PAUL, December 1, 1884.

To the Board of Water Commissioners:

GENTLEMEN:—I herewith submit my report of what has been done in my department during the fiscal year ending December 1, 1884.

A large amount of work has been accomplished. The conduit from Vadnais Lake has been completed, including the construction of gate chamber, terminal chamber and waste weirs; the pipe lines have been graded and piled across the marshes; the engine house constructed; the one and one-half million engine ready to commence active operations, and the houses necessary for the accommodation of the employes erected.

The following is a list of the work under construction, and cost:

Morton & Terry, excavation on conduit line,	16,676 99		
W. S. Morton, section 5 conduit.....	88,091 33		
Hough & Gear, section 1 "	21,535 57		
Hough & Gear, section 2 "	40,572 00		
Stevens & Elmer, section 3 "	45,167 93		
Stevens & Elmer, section 4 "	15,729 38		
		227,773 20	
Work done by Board of Water Commissioners—			
Building 616 feet tunnel.....	9,143 39		
Building 2,900 feet conduit, including the piling of 535 feet,.....	52,162 87		
		61,306 26	
Total amount conduit			289,079 46
V D. Simar, gate house.....		3,648 15	
Piling and caisson, gate house.....		1,712 35	
Gates for gate house.....		630 00	
			5,990 50
Hough & Gear, Waste weir A, ...		1,984 90	
Hough & Gear, Waste weir B, ...		2,228 29	
			4.213 19
Hough & Gear, Terminal chamber.....		5,582 05	
Boston Machine Co., Gates for terminal chamber.....		2,475 00	
			8,057 05
J J Palmer, Brick houses over waste weirs, gate chamber and terminal chamber.....			4,295 00
J. J. Palmer, Pumping station, including foundations for engine and stack.....			35,132 08
J. L. Rood, watchman's house		2,600 00	
J. L. Rood, engineer's house.....		4,800 00	
			7,400 00
E. P. Allis & Co., engines and boilers.....			28,000 00
Vine D Simar, grading from terminal chamber to Mississippi street..			20,635 49

Vine D. Simar, grading for force main	3,648 15
Vine D. Simar, grading at Mississippi-street bridge	1.095 63
David Swank, grading at Sandy Lake	5,313 60
G. Sherwood, piling on force main	950 98
H. R. DeLaplain, piling on low service	4,022 15
Erie Telephone and Telegraph Co., telephone line	573 35
Cost of contract and day work, 1884	$418,406 63

Cost of engineering, $11,419.00, equals 2 8-10 per cent. on cost of work done. If we include in this the office expenses and bill of E. P. Bassford for designs of pumping station, the cost of engineering will be $12,569.00, or 3 per cent.

Cost of inspection, $4,908.00, equals 1 2-10 per cent. This gives a total on account of engineering and inspection of 4 2-10 per cent., which is considerably under the amount usually estimated for this class of work. Since the commencement of the work the total amount that could be charged to engineer's expenses is 3⅓ per cent. of the total cost of work under construction.

The total cost of the conduit is	$363,259 15
The total length of the conduit in feet is	23,600
Cost per foot	$ 15 39

Every thing that was laid out for the season's work has been accomplished.

From the nature and magnitude of the work, unforseen obstacles have arisen which have delayed the completion beyond the contract time, but all difficulties have been met and overcome.

Our system of inspection has been close and contractors have always shown a disposition to use every effort to do good work. I believe every thing has been well done and at a minimum cost to the city.

That the amount and nature of the work may be more fully understood, I present the fellowing brief and general description of the conduit and other work under my direction.

CONDUIT.

The conduit commences at a gate chamber 21x32 feet, built on piles in Vadnais Lake, 250 feet from the shore, where the depth of the water insures a pure supply. It runs in a southerly direction, following the line of the marshes and Phalen Creek valley for about two and a quarter miles, then cutting through the ridges that divides the Phalen creek from the Trout Brook valley it follows along the west shore of Sandy Lake and terminates about one-quarter of a mile south of this lake, having a total length of four and one-half miles. The size of the conduit is six feet in height by five and one.half feet in width; it is built of brick and stone laid in cement and, with the exception of about four hundred feet, was built entirely in excavation and below the water level of the country, requiring in constructon the constant use of large steam pumps to lay the foundations. Between stations 107 and 111 the springs were so strong and of such a character that I considered it expedient to utilize them as a source of water supply. A filter-bed was accordingly constructed behind the conduit of broken stone and gravel and cast iron pipes were built into the brickwork just below the springing line of the arch to lead the water into the conduit. The flowage from these springs has fallen off about 20 per cent. since the work was finished. They are now delivering a little more than a million gallons in twenty-four hours. Should they in time become exhausted it will only be necessary to close the openings; some have been closed already. The depth of cutting ranges from ten to thirty-five feet, and every variety of excavation from hard-pan to quicksand was encountered. In one instance only was tunneling resorted to for a distance of 629 feet. Great difficulty was experienced in securing good foundations. The conduit was built on piling for a length of 675 feet, but for most of the length it rests on four-inch planks laid transversely to the line of the conduit. The capacity of the conduit is estimated at 30,000,000 gallons per twenty-four hours

The grade is one foot in four thousand.

The conduit is provided with two waste weirs and one blow-off and can be cut off in sections by means of stop planks at the waste weirs.

It terminates in a distribution chamber 40x30 feet, provided with seven gates. The water can be turned into the distribution reservoir or directly into the city mains.

The pumping station is situated about one thousand feet from the terminal chamber, and is complete in every particular. It was erected at a cost of $35,000,

including engine foundations and stack, is fire-proof, and is of sufficient size to meet all future requirements. The present plant consists of two pumping engines, with a capacity of one and one-half and three million gallons respectively, raised one hundred and fifty feet, in twenty-four hours. They were built by E. P. Allis & Co., of Milwaukee, Wis., at a cost of $28,000, which price includes two steel boilers of sixty horse power each. The engines are compound condensing, with a guaranteed capacity of 95,000,000 foot pounds duty. They are vertical engines, the high and low pressure cylinders standing directly over and and connecting with the pump plungers, the fly-wheel being connected by a double crank shaft.

For their size and capacity they are undoubtedly the most perfect, and give the highest duty, of any pumping engine thus far constructed.

GRADING AND PILING.

The grading of the pipe lines covered a distance of four and one-quarter miles, and involved the moving of 116,600 cubic yards of excavation and the use of 15,000 feet, B. M., of lumber in culverts.

In some places the pipe lines crossed deep marshes, where piling was necessary to carry the pipes. The length of the piles varied from twenty to sixty feet. They were driven in a straight line, six feet between centers, and capped with a saddle 10x12 inch timber, cut out to fit the pipe and bolted to the top of the piles. The result has been satisfactory; 25,152 lineal feet of piles were used and 20,000 feet, B. M., of lumber.

RESERVOIRS FOR DISTRIBUTION.

The system contemplates the construction of two reservoirs. A low service reservoir at the end of the conduit which shall contain about forty million gallons. This reservoir completed, the safety of the city is insured against any accident to the conduit, and the necessary cleaning and repairs can be made as required. Also a high service reservoir, which shall contain 16,000,000 gallons. With this reservoir completed, the pressure on the mains will be uniform and cost of pumping will be greatly reduced.

In regard to future work, the construction of a service for Dayton's Bluff demands immediate attention, and I shall submit plans for your approval as soon as possible. If a direct pressure system is adopted, taking the water from Phalen Lake, the contract for the pumping engine should be let early in January and the completion and erection required by August 1st.

Seventh street grading will be completed by that time, and there is no reason for further delays. The importance of completing and testing the work during the summer months cannot be overestimated.

The construction of the reservoirs at an early date is of the greatest importance for the successful and economical working of the system. The conduit will require periodical cleaning to insure a pure supply of water. To do this and make repairs, a reservoir on the low service is a necessity; otherwise the city must remain without water during that time. With a high service reservoir, the cost of pumping is reduced to a minimum.

The extension of our source of supply is of absolute necessity, not only to be ready in advance for the future needs from extensions of our system, but to meet the requirements of a succession of dry years. The success of our system depends on properly impounding the water in the lakes tributary to our supply, and using it as the demand requires. To do this the means of raising and lowering the lake surface must be provided and proper channels constructed to convey the water. The plans of future extensions as far as Forest Lake should be decided on, and all work made to conform to the system. A general plan was laid out in the report of the commissioners in 1881, but I believe many modifications will be required. I regard this matter of immediate importance, from measurements and observations made during the past season, and earnestly recommend it to your consideration.

In conclusion, I desire to express my appreciation of valuable services of my assistant engineers, Messrs. Samuel Rockwell, George T. Prince and George L. Wilson, in immediate charge of construction. To their careful supervision the excellent character of the work is largely due. I would also extend my thanks and acknowledgment to the board for the confidence and support they have given me in the planning and prosecution of the work.

Respectfully submitted,

L. W. RUNDLETT,

Eng. Board of Water Com.

To the Board of Water Commissioners of the City of Saint Paul:

GENTLEMEN—Since the organization of your Honorable Board, in my capacity as right-of-way attorney, I have settled for and condemned, under the act organizing the Board, all the right-of-way from Vadnais lake to the city of Saint Paul, including reservoir ground and pumping stations, and have caused all the deeds and papers to be properly recorded or filed in Court, as the law directed, at a cost to the city of forty-six thousand four hundred and eighty-one and 65-100 ($46,491.65) dollars. An itemized bill thereof is herewith attached, showing the different sums and amounts for which the same was paid.

Included in this amount I have paid twelve thousand ($12,000) dollars to J. B. and W. H. Sanborn, attorneys for the parties litigant, in full for all claims, accrued or to accrue, as complained of in their respective complaints; also, thirteen hundred and fifty-five and 5-100 ($1,355.05) dollars, as attorneys' fees therein. This was a suit assumed by the city in its purchase from the Saint Paul Water Company of its franchises.

Under the proceedings to condemn no appeals were taken and perfected, as required under the law, previous to the setting of the October term of the District Court, for the county of Ramsey, Minnesota, for A. D. 1884. The suit of Olive Biron was commenced previous to the setting of said term, against the Board of Water Commissioners, and was tried and determined November 25, 1884, before a jury, and a verdict rendered in favor of defendant.

I tender my thanks to the Board for their universal courtesy and kindness under all circumstances. Respectfully submitted,

S. P. FOLSOM, Right-of-way Attorney.

December 1st, 1884.

November, 1882.	H. R. Moore, Jr.	$1,200 00	
December 1, 1882,	M. Harrison	200 00	
do	C. N. Bell	200 00	
December 1, 1883.	E. Corning	200 00	
	C. Lesler	200 00	
	M. Anger	145 00	
	A. P. Mentin	200 00	
	W. B. Dean	2,000 00	
	L. Gagnie	180 00	
	P. Langelier	25 00	
	E. Paul	130 00	
	A. Mago	125 00	
	Jos. Parisean	75 00	
	S. Nadeau	430 00	
	Thomas L. Grace	200 00	
	C. Demars	300 00	
	E. Paul	8 00	
	Wm. Dawson	375 00	
	Rev. Jos. Goiffon	500 00	
	J. B. and W. H. Sanborn, attorneys	12,000 00	
	C. K. Davis, attorney	1,355 05	
	Abstracts	78 75	
	A. S. Hall	18 75	
	Recording deeds, etc	12 00	
			20,157 55
December 1.	Recording deeds, etc	15 75	
	I. V. D. Heard	180 00	
	J. M. Dean	50 00	
	T. Holmden, lot 8, Vadnais L.	660 00	
	C. Hill, about 2 acres, Sandy Lake	520 00	
	J. Koehler, " " "	600 00	
	Abstract clerk	26 10	
			2,051 85
1884.			
January,	L. A. Dion	700 00	
	A. Lannoux,	125 00	
	R. McMenemy	1,500 00	
	Register of Deeds	3 00	
	W. Dawson	400 00	

	R. W. Bell	11 50	
	J. M. Dean	85 00	
			2,824 50
February,	Abstract Clerk	8 20	
	S. M. Maggoffin	1,610 00	
			1,618 20
March,	Register of Deeds, two bills, ... 3 75 and	13 95	17 70
April,	Mathias Heinsche,	500 00	
	Franz Kalscher	500 00	
	Karl Kolscher	1,033 00	
	Peter Joseph Hahn	200 00	
	Jadok Kohler	4,100 00	
	R. P. Lewis	601 00	
	Register of Deeds	3 20	
	Peter Rolinger	1,370 00	
			8,307 20
May,	Abstract Clerk	31 55	
	H. C. James	808 00	
	Wm. Welch	125 00	
	E. G. Rogers	120 00	
	N. W. Kittson	120 00	
	Jas. Stinson	868 00	
	Calvin S. Pennel	868 00	
			2,940 55
June,	Catherine Hill,	1,000 00	
	Johannes Johnson	692 00	
	Register of Deeds, recording papers	12 75	
	Daily Globe, publishing notices of appointment of Commissioners &c	130 56	
	John Ireland	753 00	
	James Trobeck	416 00	
			3,004 31
July.	Jos. Fleckenstein	300 00	
	S. Folsom, Jr., serving legal papers	20 00	
	John Martin & Co., lumber, (McM.)	22 54	
	T. W. Sheehy	1,000 00	
	L. H. Smith, moving barn, (McM.)	75 00	
	Register of Deeds,	4 00	
	R. W. Bell, Clerk District Court, award	3,742 00	
	Daily Globe, publishing notice of meeting of Commissioners	72 00	
	D. W. Ingersoll, Right of Way Commis'r	25 00	
	Geo. L. Becker, " "	25 00	
	W. Lindeke, " "	25 00	
	Theo. Parker, " " Clerk	25 00	
			5,335.54
Aug. 1st.	Register of Deeds	1 00	
	R. W. Bell, Clk. Ct. recording paper	7 50	
	Jos. Robert	50 00	
	Ed. Rice Jr.	5 00	
			63 50
Sept.	Register of Deeds	1 50	
	R. W. Bell. Ck. D. C	3 50	
	C. D. Elfelt	55 00	
			60 00
Nov.	B. M. Magoffan	100 00	
	Register of Deeds	75	
			100 75
			$46 481 65

CITY OF ST. PAUL, OFFICE OF THE CITY TREASURER, December 1, 1884.

To the Honorable the President and Members of the Board of Water Commissioners of the City of St. Paul:

GENTLEMEN—I have the honor to submit to you the following report of the receipts and disbursements of this office from December 1, 1883, to December 1, 1884:

RECEIPTS.

Balance December 1. 1883, exclusive coupon account....			$13,602 53
1883.			
December 5.	Received from J. Caulfield, Secretary.....	$5,000 00	
11.	Same.....	10,000 00	
17.	Same.....	1,000 00	
1884.			
January 2.	Same.....	4,000 00	
5.	Same.....	10,000 00	
12.	Same.....	8,000 00	
28.	Same.....	10,000 00	
February 4.	Same.....	2,500 00	
13.	Same.....	10,000 00	
March 1.	Same.....	2,000 00	
10.	Same.....	22,000 00	
April 3.	Same.....	15,000 00	
8.	Same.....	3,500 00	
15.	Same.....	3,000 00	
15.	Same.....	500 00	
22.	Same.....	6,500 00	
June 2.	Same.....	500 00	
26.	Same.....	5,000 00	
July 26.	Same.....	25,000 00	
28.	Same.....	13,000 00	
September 27.	Same.....	5,000 00	
October 9.	Same.....	50,000 00	
16.	Same.....	4,000 00	
Nov. 1st.	Rec'd from J. Caulfield, Sec'y.....	7,509 00	
Nov. 7th.	Rec'd from J. Caulfield, Sec'y.....	25,000 00	
Nov. 22nd.	Rec'd. from J. Caulfield, Sec'y.....	25,000 00	
Nov. 24th.	Rec'd from J. Caulfield, Sec'y.....	4,300 00	
	Total.....		$277 300 00
	CITY BONDS ISSUED FOR EXTENSION OF WATER WORKS.		
	600 Bonds @ $ 1,000.00	600,000 00	600,000 00
	Premiums and accrued interest on above....	19,244 39	19,234 39
	Total receipts		910,146 92

DISBURSEMENTS.

1883.			
December.	Warrants paid.....	26,219 73	
1884.			
January.	Same.....	30,465 51	
February.	Same.....	15,417 68	
March.	Same.....	25,918 36	
April.	Same	85,960 55	
May.	Same.....	160,825 65	
June.	Same.....	106,591 61	
July.	Same.....	113,202 48	
August.	Same.....	107,705 71	
September.	Same.....	97,689 32	
October.	Same.....	78,516 61	
November.	Same	61,389 49	
	Total Disbursements pr. vouchers on hand		909,902 70
	Balance on hand, Nov. 29, 1883.....		244 22
			910,146 92

Respectfully submitted

GEORGE REIS,

City Treas., Ex-Officio Treas. Water Dep.

OLD WATER COMPANY COUPON ACCOUNT

RECEIPTS.

1883.			
Dec. 1.	To balance on hand	$3,827 75	
Jan. 2.	Received from Geo. Reis, Treasurer	6,440 00	
June 4.	" " "	6,448 00	
	Total receipts		$16,715 75

DISBURSEMENTS.

1883.			
Dec. 5.	Interest coupons paid	$2,400 00	
5.	Interest (old coupons turned over to Secretary)	1,200 00	
10.	" coupons paid	60 00	
1884.			
Feb. 11.	" " "	4,980 00	
18.	" " "	920 00	
March 5.	" " "	100 00	
April 17.	" " "	80 00	
June 6.	" " "	100 00	
July 16.	" " "	4,560 00	
Aug. 4.	" " "	600 00	
18.	" " "	400 00	
Oct. 4.	" " "	280 00	
Nov. 7.	" " "	920 00	
			$16,600 00

EXPENSE IN CASHING COUPONS IN NEW YORK CITY.

1883.			
Dec. 5.	Exchange on draft	$6 15	
1884.			
Jan. 9.	" "	10 90	
Feb. 11.	Amount paid Farmers' Loan and Trust Co. for cashing coupons	24 90	
18.	Amount paid Farmers' Loan and Trust Co. for cashing coupons	2 30	
May 20.	Exchange paid American Exchange National	1 11	
July 19.	" " " " "	17 10	
Aug. 4.	" " " " "	3 00	
18.	" " " " "	1 60	
Oct. 4.	" " " " "	1 10	
Nov. 7.	" " " " "	3 67	
			$71 83
	Total receipts	$16,715 75	
	Total disbursements		$16,671 83
	Balance		43 92
		$16,715 75	$16,715 75

Respectfully submitted,

GEORGE REIS, Treasurer.

W. R. Baker 1807

FOURTH ANNUAL REPORT

OF THE

Board of Water Commissioners

OF THE

CITY OF ST. PAUL.

DECEMBER 1, 1885.

SAINT PAUL:
H. RAMALEY & SON, PRINTERS,
GLOBE JOB OFFICE,
1885.

FOURTH ANNUAL REPORT

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OF THE

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DECEMBER 1, 1885.

SAINT PAUL:
D. RAMALEY & SON, PRINTERS,
GLOBE JOB OFFICE,
1886.

OFFICERS

OF THE

CITY WATER WORKS,

DECEMBER 1, 1883.

BOARD OF WATER COMMISSIONERS.

J. F. HOYT, President;
C. W. GRIGGS,
C. D. GILFILLAN,
P. H. KELLY,
EDMUND RICE, Mayor, member *ex-officio.*

JOHN CAULFIELD, Secretary;
JOHN B. OVERTON, Superintendent;
S. P. FOLSOM, Attorney;
MARTIN FEIST, Engineer of Pumping Station;
DANIEL MULLANE, Ass't Eng. " "

FOURTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE CITY OF ST. PAUL,

FOR THE YEAR ENDING NOVEMBER 30, 1885.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, MINN., January 1st, 1886.

The Honorable Edmund Rice, Mayor of the City of St. Paul:

SIR:—We have the honor to submit our annual report dated December 1st, 1885, according to section eight, (8) of the act entitled "An Act to amend the Charter of the City of Saint Paul, and the acts amendatory thereof," approved March 2nd, A. D. 1885.

It is but proper for us to state that our annual report, submitted to the Common Council, dated December 1st, 1885, was made in accordance with section twenty-nine (29) of the act entitled "An Act to amend and consolidate an act to authorize the City of Saint Paul to purchase the franchise and property of the St. Paul Water Company, and creating the Board of Water Commissioners, approved February 10th 1881, and the act amendatory thereof, approved the 25th day of January, 1883," approved March 14, A. D. 1885, of which the one submitted to your honor of this date is substantially the same report.

This report brings us down one month later than that required by section eight (8) referred to, and under which this report is made.

We have the honor to be

The Board of Water Commissioners, by its President,

J. F. HOYT.

Attest:

JOHN CAULFIELD,

Secretary.

REPORT OF WATER COMMISSIONERS.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, Dec. 1st, 1885.

To the Honorable Common Council of the City of Saint Paul:

GENTLEMEN:—Herewith is submitted the fourth annual report of the Board of Water Commissioners for the year ending Nov. 30th, 1885, consisting principally of the detailed statements by the officers of the Board of the year's work in their respective departments. A careful perusal of these papers is invited, and the opportunity is here taken to note the fact that this is the day under the law on which this report should be made, a promptness characteristic of every day's work during the year in the departments of the Secretary and Superintendent of this Board.

Bonded indebtedness of the city on account of the water works...	$1,660,000
Annual interest on same.....	84,300

Total from water receipts during the year not including frontage tax, $116,195.41.

Pipe laid this season 23 miles 2,583 feet.

Total of main now laid 67 miles 4,100 feet.

New connections this season, 1,009.

Total connections 3,940, of which 3,132 are on the low service and 808 on high service.

We have now 491 fire hydrants, 52 sprinkling hydrants, and 640 gates or valves.

The frontage tax, which is now 10 cents per front foot, can probably be reduced in a year or two to 7 or 8 cents.

As promised one year ago, water rates have been reduced. The Board receives per bbl, for water placed in cisterns 2½ cents, for water used in sprinkling streets less than 1 cent per bbl. The lowest rate for water furnished to meter consumers is 15 cents per 1,000 gallons.

A family in a house of four rooms will pay but five dollars per annum for all the water they can prudently use.

In preparing for this new schedule of prices, and to make the same as perfect and fair as possible, an inspection of all the premises served had to be made. In accomplishing this 3,000 houses and places of business have been kindly opened to our inspectors, and all needed information freely given, this kindliness with but one or two exceptions. In all these places visited, in this inspection, there was found but little wanton or careless waste of water.

A water commission can be a great teacher of economy. A good deal is gained in this direction when the people use, with prudence, water, which, popularly is supposed, should be as free as air.

The relations of this Board with the plumbers, architects, and builders of the city, are necessarily close; the convenience, safety and hygiene of the house, office, store, or shop depends largely upon the working together properly of all these agencies.

The Board is pleased to note here the improved and improving condition of our partnerships in this respect.

In the selection of Mr. Martin Feist and his assistants, who man the pumps and gates at the fountain heads, the Board has been very fortunate.

Respectfully submitted,

J. F. HOYT,
C. W. GRIGGS,
P. H. KELLY,
EDMUND RICE,
CHARLES D. GILFILLAN.

SECRETARY'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1st, 1885.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—I respectfully submit to your Honorable Board my fourth annual report, with accompanying statements, showing in detail, under appropriate heads, the financial operations of the Water Department for the year ending November 30th, 1885.

REVENUE.

Cash on hand December 1st, 1885		$1,579 60
General water receipts	$102,965 75	
Miscellaneous water receipts	13,229 66	
Connections, (street services)	21,999 84	
Shutting off and turning on water	46 00	
Repairs	1,638 83	
Extensions	896 71	
Construction, (new supply)	30 90	
Bills payable	50,000 00	
Bonds	400,000 00	
Interest	1,656 67	
Frontage tax	12,269 90	
		$604,654 26
Total		$606,233 86

DISBURSEMENTS.

General maintenance	$ 19,275 58	
Connections, (street service)	19,768 03	
Repairs	5,240 04	
Meters	1,633 75	
Extensions	207,586 90	
Construction	40,148 36	
Interest	79,318 58	
Bills payable	150,000 00	
Total		$522,971 24
Balance		$83,262 62

Of the receipts $401,666.67 was derived from the sale of $400,000 of bonds issued April 1st, 1885, $50,000.00 from temporary loans, and $12,269.90 from frontage tax. The general water receipts, including high and low service and meters, were $102,965.75, an increase of $20,706.12 over former year.

The miscellaneous water receipts, from builders, water carts, flushing sewers, filling cisterns and sprinkling streets, were $13,229.66, an increase of $248.19. Interest account is credited with $1,666.67, being one month's accrued interest on bonds sold. The five and one-half per cent. premium amounting to $22,000.00 received from the sale of the $400,000 bonds dated April 1st, has not yet been turned over to the Water Department.

Repairs account is credited with $1,638.83, of which $1,500.00 was received from the St. Paul & Northern Pacific Railroad Co. for expense of lowering mains under railroad crossings at Mississippi and Dale streets and Lafayette avenue; $47.65 from city of St. Paul, for expenses, changing hydrants caused by changing grades of streets, and $91.18 from contractors for damages caused to water mains in constructing sewers.

Extension account is credited with $896.71, of which $691.50 was received from sale of 190 loads of rock at 25c, and 1,298 loads of rock at 50c, excavated from main trenches, $168.08 from sale of scrap iron, brass and old valves, and $32.33 retained and unclaimed on pay rolls for year.

Construction account is credited with $30.90, of which $19.40 was received for sale of timber and stone, and $11.50 unclaimed on country pay roll for November, 1884.

INTEREST, REPAIR, AND GENERAL MAINTENANCE, AND OTHER ACCOUNTS.

$79,318.58 has been paid on account of interest on bonds and loans, $5,240.04 on account of repairs on mains, hydrants and valves, caused principally by change of grades of streets, re-laying mains and re-setting hydrants; $19,275.58 was paid on account of general maintenance, of which $6,572.66 was for maintaining pumping station, and includes salaries of engineers, fireman, fuel and supplies, and $12,702.92 for salaries of all officials, employes, office expenses, stationery, legal and all other expenses, necessary in maintaining the works. $1,633.75 was paid for meters.

$207,586.90 was paid on account of city extensions, of which $117,837.26 was for cast iron pipe and specials, $58,418.29 for labor, $11,700.00 for hydrants, $9,4[illegible]3.60 for valves, and $10,217.75 for tools and repairs, pig lead and material.

$40,148.36 was paid on account of construction (new supply), of which $24,446.18 was on account of contracts made previous to December 1st, '84, and balance on account of contracts made in 1885 and engineering and right of way.

All pipe laying has been done by the board as formerly. The pay rolls for the year amounted to $88,221.02 and the average monthly employes has been 216.

CONTRACTS.

On December 1st, 1884, there was $57,307.82 due on contracts, of which $24,446.18 has been paid during the past year, leaving $32,861.64 still due: $14,000.00 of which is due on pumping machinery, and $18,861.64 due Hough & Gear, contractors, for sections 1 and 2 of conduit.

Contracts have been let during the past year amounting to $57,735.64, all of which have been completed and paid for.

BONDED DEBT.

The bonded debt of the city for water works purposes has been increased during the year by the issue of $400,000.00 of five per cent. bonds.

The present bonded debt is $1,660,000, this includes the $160,000 of Water Company's bonds assumed by the city.

The total annual interest on the bonds is $84,300.00, which is paid out of the revenue of the works.

FRONTAGE TAX.

There has been collected during the year by the County Treasurer $1[illegible],-269.90 on account of frontage tax for year 1884, leaving $577.86 still due.

The frontage tax assessment for year 1885 has been made and is now in the hands of County Treasurer for collection, amounting to $2[illegible],590.06.

METERS.

There are now in use 166 meters. The revenue derived from this source for the year was $29,482.99, an increase of $2,762.48 over former year, notwithstanding the reduction of twenty per cent. made on June 1st last.

On account of a still further reduction of from ten to thirty per cent. to meter consumers, which is to take effect January 1st, I do not anticipate the receipts from this source to exceed $21,000.00 for the year ending December 1st, 1886. For details of receipts and disbursements see accompanying statements.

SERVICES.

During the past year 1,009 applications have been made for service connections, of which 365 were on the low or gravity service and 644 on high service. This is an increase of 509 over previous year, and the largest number put in during the history of the works.

The total number of applications to date is 3,940, of which 3,132 is on low and 808 on high service, an increase of 1,928 since the city purchased the works in August, 1882.

INSPECTION.

One inspector is employed to examine all work done by the plumbers, to see if the rules are complied with. During the year 1,454 permits were

issued to plumbers to do work in connection with the introduction and extension of water services, as against 718 the year previous. Plumbers are required to make a written report of the work done under each permit. Upon the report being received, the inspector makes an examination of the premises, and, if satisfactory, the report is signed by him and returned to the office and filed. A great deal of annoyance is caused the department by plumbers reporting work when but partially completed, and instances have occurred, where plumbers made reports before any work was commenced.

This is a source of great annoyance both to the consumer and this department, and I would renew my recommendation made two years ago, to impose a fine upon the plumber in every case where he reports work so completed and in accordance with the rules, when, upon inspection, it is found defective.

The inspection service is a very important branch of the work of this department, as the revenue of the works in a great measure depend upon this work being faithfully and honestly performed.

Another source of trouble during the past year was caused by sewer contractors putting in water services from property line to cellar. By the carelessness of these contractors, we have discovered eight cases where they had the service pipes crossed, where two pipes were put in same trench to supply double houses, and for our own protection, we were compelled to have them dug up and changed.

We have had another case, where one of these contractors put in *strong* pipe instead of *extra strong*, as required by our rules, and which we compelled them to change before water was turned on.

I would recommend, as a protection to customers, that no connection be made with any service pipes, unless the same were put in under the supervision of a licensed plumber.

CONCLUSION.

I desire to return my thanks to the members of the Board, and the Superintendent, for uniform kindness and assistance rendered me in the performance of my duties, and to the employes for the prompt and satisfactory manner with which they have performed their several duties.

Respectfully submitted,

JOHN CAULFIELD,

Secretary.

TRIAL BALANCE, DECEMBER 1, 1885.

St. Paul Water Works, (original purchase)	$510,000 00	
Bond account		$1,660,000 00
General water receipts		256,593 58
Miscellaneous		39,252 73
Connection account, (services)		185 33
Extension account	429,755 57	
General maintenance account	39,304 55	
Repair account	7,159 68	
Meter account	3,912 66	
Construction account, (new supply)	750,988 47	
Interest account	144,124 99	
Geo. Reis, City Treasurer	83,262 62	
Shutting off and turning on water		207 00
Frontage tax		12,269 90
	$1,968,508 54	$1,968,508 54

Receipts and Disbursements from December 1, 1884, to November 30, 1885.

Dec. 1, 1884. Balance			1,579.60
General water receipts, high service	7,199.82		
General water receipts, low service, semi-annual	66,282.94		
General water receipts, low service, meters	29,482.99		
		102,965.75	
Miscellaneous water receipts, builders	2,716.67		
" " water carts	559.55		
" " flushing sewers	575.50		
" " filling cisterns	2,305.99		
" " sprinkling streets	7,071.95		
		13,229.66	
Connection, service pipes		21,909.84	
Shutting off and turning on water		46.00	
Repair		1,638.83	
Extension		896.71	
Construction, new supply		39.90	
Bills payable		50,000.00	
Bonds sold		400,000.00	
Interest		1,666.67	
Frontage tax		12,269.90	
			604,654.26
Total Receipts			$606,233.86

DISBURSEMENTS.

General maintenance account.			
Salaries	12,311.70		
Stationary and printing	465.29		
Miscellaneous	245.40		
Labor	1,449.14		
Material	4,327.22		
Stable, feed	355.64		
Stable, horse shoeing and repairs	121.19		
		19,275.58	
Connection account, (service pipes).			
Labor	10,032.56		
Pipe	5,306.32		
Brass goods and stop-boxes	3,813.33		
Tools and miscellaneous	615.92		
		19,768.03	
Repair account.			
Hydrants, labor 1,164.04; material 328.09	1,492.13		
Valves, labor 25.20; material 20.75	45.95		
Mains, labor 3,501.99; material 199.97	3,701.96		
		5,240.04	
Extension account.			
Pipe and special castings	117,837.26		
Labor	58,418.29		
Tools, and repairs of same	1,686.58		
Advertising	41.48		
Fire hydrants	11,700.00		
Valves	9,423.66		
Lead and hemp packing	6,161.44		
Lumber and material	2,065.02		
Miscellaneous	253.17		
		207,586.90	
Meter account.			
Labor	101.27		
Meters and freight	1,532.48		
		1,633.75	
Construction account, (new supply).			
Labor and contracts	30,246.40		
Tools and repairs of same	313.22		
Lumber and material	2,395.86		
Freight	7.92		
Engineering and right of way	4,790.76		
Miscellaneous and building account	2,394.20		
		40,148.36	
Interest account		79,318.58	
Bills payable		150,000.00	
Total disbursements			522,971.24
Balance			$83,262.62

Receipts and Disbursements from August 10, 1882, to November 30, 18

General water receipts, high service	7,199.82		
General water receipts, low service, semi-annual	164,036.26		
General water receipts, low service, meters	83,357.50		
		250,593.58	
Miscellaneous water receipts, builders	7,792.65		
Miscellaneous water receipts, water carts	2,196.58		
Miscellaneous water receipts, flushing sewers	1,192.65		
Miscellaneous water receipts, filling cisterns	8,198.99		
Miscellaneous water receipts, sprinkling streets	20,541.86		
		39,252.73	
Connection, service pipes		45,425.04	
Shutting off and turning on water		297.00	
Repair		2,612.01	
Extension		8,085.48	
Construction, (new supply)		647.23	
Bills payable		343,000.00	
Bonds sold		1,150,000.00	
Interest		29,911.06	
Frontage tax		12,269.90	
Total receipts			$1,870,0

DISBURSEMENTS.

General maintenance			
Salaries	25,658.47		
Stationery and printing	1,584.71		
Miscellaneous	1,104.79		
Labor	4,543.30		
Material	4,7[illegible]5.41		
Stables, feed	844.13		
Stables, horse shoeing and repairs	437.49		
		39,278.30	
Connection account, (service pipes).			
Labor	24,194.84		
Pipe	11,988.86		
Brass goods and stop-boxes	7,545.28		
Tools and miscellaneous	1,499.98		
		45,228.96	
Repair account.			
Hydrants, labor 3,403.91			
Hydrants, material 520.90	3,921.81		
Valves, labor 59.83			
Valves, material 58.93	118.76		
Mains, labor 5,497.29			
Mains, material 260.68	5,757.97		
		9,801.54	
Extension account.			
Pipe and special castings	207,518.56		
Labor	145,758.62		
Tools, and repairs of same	5,048.13		
Advertising	68.38		
Fire hydrants	23,474.00		
Valves	2,689.14		
Lead and hemp packing	19,383.32		
Lumber and material	4,651.98		
Miscellaneous	2,448.49		
		438,080.62	
Meter account.			
Labor	197.87		
Meters and freight	3,714.79		
		3,912.66	
Construction account, (new supply).			
Pipes and special castings	174,985.58		
Labor and contracts	409,088.41		
Tools, and repairs of same	4,510.81		
Lumber and material	67,110.26		
Freight	9,342.06		
Engineering and right of way	74,019.75		
Miscellaneous and building account	12,374.81		
		751,423.28	
Interest account		165,036.05	
Bills payable		343,000.00	
Total disbursements			1,795,7
Balance			$83,2

AID D

EPAIRS.		N—NEW SUPPLY.					
VALVES.							
Labor.	Material.	Material.	Freight.	Engineering and Right of Way	Miscellaneous and Building Account.	Interest.	Bills Payable.
20	$.....	$ 82	$....	$1 242 40	$ 1 25	$ 6,448 00	$.....
....	6 55	76	7 92	841 80	33 44	4,016 99	25,000 00
....	3 00	75	....	471 46	75 50	.....	.....
....	1 85	76	....	409 07	.....	15,037 50	.....
....	.....	98	....	207 27	11 50	.....	.....
75	.....	71	....	201 25	.....	11,528 74	125,000 00
75	.....	74	....	100 00	45 00	.....	.....
50	6 30	55	....	119 40	.....	10 207 35	.....
....	.....	1,[illegible] 49	....	651 39	.....	.....	.....
....	.....	2 44	....	208 91	.....	25,062 50	.....
....	30	66	....	171 06	1,719 00	.....	.....
....	2 75	20	....	166 66	508 51	7,017 50	.....
20	20 75	$3,[illegible]5 86	$7 92	$4,790 76	$2,394 20	$79,318 58	$150,000 00

BOND ACCOUNT, DECEMBER 1, 1885.

DATE OF ISSUE.	WHEN DUE.	AMOUNT OF BONDS.	RATE.	INTEREST PAYABLE. Dec. 1.	Jan. 10	Feb'y 1	April 1.	June 1.	July 1.	Aug. 1.	Oct. 1.	ANNUAL INTEREST.
Water Company's bonds, (assumed by city)	Jan. 1' 89	160,000 00	8 per c't		6,400 00				6,400 00			12,800 00
City bonds, June 1. 1882	30 years.	350.000 00	4 "	7,000 00				7,000 00				14,000 00
City bonds, August 1, 1883	30 years.	150.000 00	5 "			3,750 00				3,750 00		7,500 00
City bonds, April 1. 1884	30 years.	600 000 00	5 "				15,000 00				15,000 00	30,000 00
City bonds, April 1, 1885	30 years.	400.000 00	5 "				10,000 00				10,000 00	20,000 00
		$1,660,000 00		7,000 00	$6,400 00	$3,750 00	$25,000 00	$7,000 00	$6,400 00	$3,750 00	$25,000 00	$84,300 00

STATEMENT SHOWING AMOUNT PAID CITY TREASURER, AND WARRANTS DRAWN AGAINST SAME, FROM DECEMBER 1, 1884, TO DECEMBER 1, 1885.

1884.				
December 1	Balance in treasury as per last report.....			244 21
December 2	Cash.....	20,000 00		
December 3	Cash.....	30,000 00		
December 29	Cash.....	5,000 00		
1885.			55,000 00	
January 10	Cash.....	20,000 00		
January 29	Cash.....	5,000 00		
			25,000 00	
February 26	Cash.....		4,000 00	
March 12	Cash.....	3,000 00		
March 27	Cash.....	9,500 00		
			12,500 00	
April 6	Cash.....	1,500 00		
April 29	Cash.....	2,700 00		
			4,200 00	
May 2	Cash.....	2,000 00		
May 21	Proceeds of 400 bonds at $1,000 and 1 mo. accrued interest.....	401,666 67		
do 28	Cash.....	2,000 00		
			405,666 67	
June 23	Cash.....	15,000 00		
June 27	Cash.....	1,500 00		
			16,500 00	
July 20	Cash.....	20,000 00		
July 28	Cash.....	8,000 00		
			28,000 00	
August 3	Cash from county treas'r, frontage tax...	11,827 14		
August 10	Cash.....	5,000 00		
August 28	Cash.....	5,000 40		
			21,827 54	
Sept. 16	Cash.....	5,000 00		
Sept 26	Cash.....	5,000 00		
			10,000 00	
October 15	Cash.....	5,000 00		
October 27	Cash.....	9,000 00		
			14,000 00	
Novemb'r 17	Cash.....	4,000 00		
Novemb'r 24	Cash from county treas'r frontage tax.....	442 76		
Novemb'r 25	Cash.....	4,852 67		
			9,295 43	
				605,989 64
	Total.....			$606,233 86

WARRANTS DRAWN AGAINST SAME.

1884.									
December 1	Warrants	Nos.	1,585	to	1,603	inclusive	16,544 69		
December 8	"	"	1,604	"	1,625	"	10,569 67		
December 19	"	"	1,626	"	1,641	"	1,526 76		
								28,461 12	
1885.									
January 2	"	"	1,642			"	3,659 85		
January 12	"	"	1,643	"	1,687	"	36,279 61		
								39,939 46	
February 2	"	"	1,688			"	3,393 26		
February 9	"	"	1,689	"	1,723	"	1,171 95		
February 19	"	"	1,729	"	1,733	"	81 52		
								4,616 73	
March 2	"	"	1,734			"	3,140 11		
March 12	"	"	1,735	"	1,757	"	16,443 86		
								19,583 97	
April 1	"	"	1,758			"	3,338 63		
April 6	"	"	1,759	"	1,789	"	1,673 39		
								5,057 02	
May 2	"	"	1,790				4,967 63		
May 9	"	"	1,791	"	1,833	"	118,196 38		
May 12	"	"	1,834	"	1,836	"	72,575 14		
May 25	"	"	1,837	"	1,841	"	15 880 18		
								211,619 33	
June 1	"	"	1,842			"	8,501 62		
June 8	"	"	1,843	"	1,871	"	11,941 73		
June 19	"	"	1,872	"	1,879	"	14,845 78		
June 26	"	"	1,880	"	1,881	"	508 72		
								35,797 85	
July 1	"	"	1,882	"	1,883	"	20,017 07		
July 14	"	"	1,884	"	1,919	"	16,992 43		
July 24	"	"	1,920	"	1,926	"	14,525 27		
								51,534 77	
August 3	"	"	1,927			"	13,060 65		
August 6	"	"	1,928	"	1,955	"	12,538 73		
August 21	"	"	1,956	"	1,971	"	8,385 64		
								33,985 02	
September 1	"	"	1,972			"	10,169 10		
September 8	"	"	1,973	"	2,002	"	7,845 04		
" 22	"	"	2,003			"	25,062 50		
								43,076 64	
October 1	"	"	2,004			"	10,088 56		
October 5	"	"	2,005	"	2,026	"	10,083 11		
October 10	"	"	2,027	"	2,052	"	7,740 48		
October 20	"	"	2,053	"	2,054	"	1,032 75		
								28,944 90	
November 2	"	"	2,055				9,393 90		
November 5	"	"	2,056	"	2,081	"	2,162 52		
Novemb'r 19	"	"	2,082	"	2,095	"	8,618 01		
								20,174 43	
									522,971 24
	Balance in City Treasury								$83,262 62

CONTRACTS MADE PREVIOUS TO DECEMBER 1, 1884, AND UNCOMPLETED AT TIME OF LAST ANNUAL REPORT.

WITH WHOM AND FOR WHAT PURPOSE.	AM'T DUE DEC. 1, '84.	AMOUNT PAID.	AM'T DUE DEC 1, '85.
E. P. Allis & Co., Milwaukee, engines and boilers	28,000 00	14,000 00	14,000 00
Hough & Gear, Buffalo, N. Y., constructing sections 1 and 2 of conduit	17,927 69	1,272 18	16,665 51
Hough & Gear, Buffalo, N. Y., terminal chamber and waste wires A and B.....	2,206 13		2,206 13
J. J. Palmer, St. Paul, superstructure pumping station	7,284 00	7,284 00	
Herzog Manf'g Co., Minneapolis, iron truss roof, superstructure pumping station.....	100 00	100 00	
J. L. Rood, St. Paul, dwelling houses at pumping station and Vadnais Lake.....	1,790 00	1,790 00	
	$57,307 82	$24,446 18	$32,861 64

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS, FROM DECEMBER 1, 1884, TO DECEMBER 1, 1885.

DATE OF CONTRACT.	WITH WHOM AND FOR WHAT PURPOSE.	AM'T OF CONTRACT	AMOUNT PAID.	AMOUNT DUE.
Jan'y 17, '85	R. Wood & Co., Philadelphia, Pa., 225 fire hydrants at $52	11,700 00	11,700 00	
Jan'y 22, '85	St. Paul Foundry Co., St. Paul, iron floor at pumping house.....	1,649 84	1,649 84	
Febr'y 21, '85	Bingham & Taylor, Buffalo, N. Y., valves and stop cock boxes.	3,352 45	3,352 45	
March 7, '85	Sickle, Harrison & Howard Iron Co., St. Louis, Mo., cast iron pipe and specials	117,667 40	117,667 40	
March 11, '85	Boston Machine Manuf'g Co., Boston, Mass., valves.....	7,161 00	7,161 00	
March 16, '85	Minnesota Shot and Lead Co., St. Paul, pig lead and lead pipe.	4,830 61	4,830 61	
March 19, '85	F. M. Towar, St. Paul, drayage.	2,773 78	2,773 78	
June, 23, '85	A. W. Sherwood & Co., St. Paul, piling on Grove street in Trout Brook valley	571 45	571 45	
July 23, '85	Minnesota Shot and Lead Co., St Paul lead pipe	1,814 63	1,814 63	
Sept. 8, '85	J. J. Palmer, Minneapolis, brick shop and stable.....	2,173 47	2,173 47	
Sept. 23, '85	H. P. Rugg & Co., St. Paul, 2 cars pig lead	2,171 33	2,171 33	
October 8, '85	H. P. Rugg & Co., St. Paul, 1 car lead pipe	1,579 68	1,579 68	
Sept. 28, '85	Scribner Roofing & Cornice Co., St. Paul gate for conduit, shore Vadnias Lake	359 00	359 00	
		$157,795 64	$157,795 64	

STATEMENT SHOWING AMOUNT DUE THE WATER BOARD ON DECEMBER 1, 1885.

Application.			
	From the City of St. Paul.		
715	Rice park fountain	$ 100 00	
1026	Irvine park fountain	100 00	
1251	Exchange street fountain	100 00	
379	City hall building	52 50	
380	City offices (Baldwin school building)	45 00	
	Water for fire purposes, 6 months to Dec. 1, 1885	9,740 00	
	Repairing main on Lafayette avenue, caused by sewer contractor	12 56	
	Repairing gate box on E. Seventh street, caused by pavenient contractor	5 25	
	Repairing main on Westminster street, caused by sewer contractor	1 75	
	Repairing main Robert st., bet. 4th and 5th, caused by settling of service sewer	54 86	
	Repairing main on Pearl street, caused by settling of service sewer	20 21	
	Repairing main on Summit and Selby, caused by sewer contractor	8 00	
	Water for flushing sewers to date	72 00	
	Premium on $400,000 water bonds dated April 1, 1885	22,000 00	
			$32,312 13
	From Board of Fire Commissioners.		
1221	Engine house Tenth and Broadway	106 40	
303	Engine house St. Peter street	115 00	
259	Engine house Wacouta street	67 70	
1243	Engine house Ramsey and Leech	89 15	
2410	Engine house, Central hall, Eighth and Minnesota	130 75	
462	Engine house Selby and Mackubin (High service)	11 40	
743	Engine house Ross near Seventh (High service)	8 75	
742	Engine house Edmund and Marion (High service)	6 25	
	Repairing hydrants	31 05	
	Laying main from Yeorg's artesion well to Ohio street	251 09	
			$ 817 54
	Balance frontage tax assessment for year 1884		577 86
	Frontage tax assessment for year 1885		20,590 06
	From builders		500 00
	From service connections		1,800 00
	Total		$56,597 59

List of Vouchers paid from December 1, 1884, to December 1, 1885.

DECEMBER, 1884.

No of Voucher.	Name.	Claim.	Amount.
1585	John Caulfield, sec'y	City pay-roll for November	$ 3,598 46
1586	John Caulfield, sec'y	Country pay-roll for November	1,325 18
1587	St. Paul Book and Stat'y Co.	Stationery	4 53
1588	E. P. Miller	Sonoretts for telephone	2 50
1589	Taylor & Craig Co	1 book case	11 00
1590	Kenny Bros	1 piece boiler iron	10 59
1591	J. W. Callahan	369 9|10 yds top dress'g conduit	166 45
1592	W. W. Kimball	Glazing	1 90
1593	A. W. Cumming	Stenographic copy	3 00
1594	St. Paul Foundry Co	1 Manhole cover	15 00
1595	Griggs & Foster	Fuel	999 75
1596	Isted & Halsted, Milwaukee, Wis	Oil and waste	110 50
1597	Fairbanks, Morse & Co	Repairing platform scales	1 00
1598	Ranney & Hodgman	1 pair hip boots	4 01
1599	Erie Telegraph & Telephone Co	Mov'g telephone to pump-house	9 50
1600	Averill, Russell & Carpenter	2 rolls tarred felt	1 91
1601	W. F. Bailey & Co	Brass fittings and repairs	77 12
1602	S. Nadeau, Little Canada	Hauling rip-rap stone to gate-house 90 yds @ 85c, 167.7 @ 70c	202 29
1603	E. P. Allis & Co., Milwaukee, Wis	Estimate No. 1 pumps, etc	10,000 00
1604	Pollock, Donaldson & Ogden	½ doz. lantern globes	50
1605	Prendergast Bros	2 Registers	7 20
1606	St. Paul Cement Pipe Works	100 feet 12 inch pipe	28 00
1607	Wilson & Rogers	Pipe and brass fittings	12 34
1608	J. H. Fielding	Relaying pavement	99 67
1609	P. H. Kelly Mercantile Co	Powder and fuse, etc	53 85
1610	St. Paul Gaslight Co	Gas bill for November	5 00
1611	Pioneer Press Co	Printing and binding	3 75
1612	McNamee & Keigher	Feed	24 66
1613	Minnesota Coffee and Spice Co.	Printing bills	21 50
1614	Daily Globe	1 cover for report	1 00
1615	John Bell	8 barrels cement	11 20
1616	J. DeGraw & Sons	Fencing	14 31
1617	Geo. J. Mitsch & Co	Gasoline, oil, etc	7 10
1618	H. P. Rugg & Co	Lead and iron pipe, etc	379 22
1619	Duggan Bros	Blacksmithing	87 45
1620	Harrington & Co	Soil pipe	75
1621	J. J. Palmer	Estimate No. 4, superstructure engine house, etc	3,315 00
1622	Geo. Reis, city treasurer	Int. and exchange on $160,000 bonds, 6 months, to Jan. 10, '85	6,448 00
1623	John Caulfield, sec'y	Cash advanced for hay, stamps	26 47
1624	Trick & Co	Wire screen frames	21 70
1625	Chas. Friend	Harness repairs	1 00

No of Voucher.	Name.	Claim.	Amount.
1626	E. B. Chandler, Chicago, Ill.	Fire alarm mat'l for pump-house	89 35
1627	Capital Iron Works	Machine works	12 92
1628	O. C. Passel	Photo of machines	1 25
1629	Pioneer Press	Daily to Dec. 31, 1884	6 00
1630	John Martin Lumber Co	Lumber	17 00
1631	Robinson & Cary	Wire cloth, etc	17 10
1632	St. Paul Foundry Co	1 Manhole cover	15 00
1633	Sanders & Matthews	2 barrels cement	2 80
1634	J. F. Tostevin	Grates, etc, dwell'g at pumphouse	110 00
1635	H. K. Stahl for E. B. Crabtree.	Covering pipe, pump-house	15 84
1636	Blakemore & Angell	Framing photo for exposition	4 00
1637	Wm. Jopps for I. R. Jenkins	Laying telephone line	9 00
1638	James S. Burris	2,000 sewer brick @ 10.50	21 00
1639	Wm. S. Moore	Legal services	495 50
1640	J. Lyman Rood	Estimate No. 3 and final, dwelling, Vadnai's, Lake	560 00
1641	J. I. Beaumont	Making frontage tax-rolls 1884.	150 00
			$28,641 12

JANUARY, 1885.

1642	John Caulfield, sec'y	Pay-roll for December	$ 3,659 85
1643	George Reis, city treasurer	Int. and exchange on $150,000 bonds of Aug. 1, 1883	3,759 35
1644	R. D. Wood & Co. for Florence Iron Wks., Phila., 20 hydr't valves.		40 00
1645	Herzog Manufacturing Co	Estimate No. 3 and final Iron roof station pumping	100 00
1646	Union Water Meter Co., Worcester, Mass., repairing meters		139 34
1647	V. Guerin, Little Canada	Blacksmithing	1 30
1648	St. Paul Book & Stationery Co	Stationery	10 58
1649	Geo. Mitsch	Blacksmithing	6 85
1650	Pollock, Donaldson & Ogden	Lantern fixtures	4 60
1651	Charles Friend	Harness repairs	75
1652	St. Paul Gas Light Co	Gas for December	6 75
1653	Richard Price	Veterinary services	1 00
1654	Breuer & Rhodes	B. S. Tools	1 95
1655	Farwell, Ozmun & Jackson	Tools, etc., pump station	41 03
1656	John Martin Lumber Co	Lumber	10 88
1657	J. DeGraw & Sons	Lumber	2 78
1658	Jadok Kohler for Geo. L. Wilson	Right of way	150 00
1659	Frank Skok	Blacksmithing	43 06
1660	P. H. Kelly Mercantile Co	Powder, oil and fuse	79 71
1661	Kennedy & Chittenden	Brooms, brushes, etc	1 10
1662	Duggan Bros	Blacksmithing	35 00
1663	Frank Morand	1 hydrant steamer	70 00
1664	K. P. Cullen	Livery	24 00
1665	John Bell	15 barrels cement	21 00
1666	McNamee & Keigher	Feed	14 63
1667	W. F. Bailey & Co	Brass goods and hydrant repairs	16 72
1668	The Pioneer Press Co	300 engineer's blank report	10 75
1669	St. Paul Foundry Co	2 pieces R. R. iron	6 15
1670	E. P. Miller	2 telephone sonorettes	5 00
1671	Ranney & Hodgman	2 pair rubber boots	8 03
1672	Slater & Riley	Horse shoeing	12 50
1673	Fairbanks, Morse & Co	1 wheelbarrow scales	35 00
1674	Daily Globe	Printing and advertising	40 34
1675	A. G. Foster	Fuel	97 50
1676	Adam Decker	Hardware and tools	14 10
6177	Wilson & Rogers	Pipe fittings	28 89
6178	Robinson & Cary	Pipe fittings	34 29

No of Voucher.	Name.	Claim.	Amount.
1679	H. P. Rugg & Co	Pipe, fittings and tools	106 31
1680	John Caulfield, sec'y	Cash adv. for freight, postage, etc	31 22
1681	City of Minneapolis Water Wks	Diver and expenses	20 00
1682	C. A. Barthelet, Milwaukee, Wis	6 4 inch moulds, socket, etc., for manufacturing cement pipe	25 00
1683	Bank of Minnesota	Note and interest	25,257 64
1684	J. L. Rood	Estimate No. 3, dwelling houses	1,000 00
1685	J. J. Palmer, Minneapolis	Carpenter work, engine house	171 75
1686	J. J. Palmer, Minneapolis	Estimate No. 5 superstructure, engine house	4,784 26
1687	Truman M. Ingersoll	Photos for N. Orleans exposit'n	8 50
			$39,939 46

FEBRUARY, 1885.

1688	John Caulfield, sec'y	Pay-roll for January	$ 3,363 26
1689	C. D. Gilfillan	Salary Nov. and Dec. '84, Jan. '85	25 00
1690	C. D. O'Brien	do do do	25 00
1691	C. W. Griggs	do do do	25 00
1692	P. H. Kelly	do do do	25 00
1693	J. F. Hoyt	do do do	25 00
1694	J. J. Watson & Bro	Insurance on houses and pump station, etc	49 50
1695	G. M. Hopkins	2 copies city atlas	40 00
1696	St. Paul Book & Stationery Co	Stationery	13 33
1697	Harrington & Co	Bronze gas fixtures	85
1698	John Martin Lumber Co	Lumber	1 60
1699	Farwell, Ozmun & Jackson	1 ice saw and breaker	9 75
1700	Rhodes & Morton	1 anvil and hardware	13 10
1701	H. P. Rugg & Co	Pipe fittings	19 04
1702	The Daily Globe	Advertising	1 00
1703	St. Paul Dispatch	Local 1 time, advertising	80
1704	Die Volkszeitung	Advertising	75
1705	Cardozo & Heineman	1 shade	40
1706	McNamee & Keigher	Feed	12 22
1707	Pioneer Press Co	Advertising	2 50
1708	Duggan Bros	Blacksmithing	17 72
1709	Frank Skok	Blacksmithing	51 85
1710	John Bell	12 barrels cement	18 00
1711	J. DeGraw & Sons	Lumber	1 51
1712	Minnesota Coffee & Spice Co	Job printing	22 00
1713	Richard Price	Veterinary services	7 35
1714	P. H. Kelly Mercantile Co	Powder, fuse and oil	134 60
1715	Wilson & Rogers	Pipe and fittings	17 43
1716	St. Paul Globe Printing Co	Sub. daily, Nov. 1, '84–Feb. 1, '85	2 25
1717	Geo. J. Mitsch & Co	Gasoline, asphaltum	2 99
1718	W. F. Bailey & Co	Brass work	4 05
1719	St. Paul Foundry Co	Iron castings	3 98
1720	Robinson & Cary	2 files and handles	87
1721	DePew & Co	6 lbs. brasswork paste	3 00
1722	Pollock, Donaldson & Ogden	Lampburners and wick	1 10
1723	Stockton, Lindquist & Co	36½ feet tunneling @ 1.25	45 60
1724	Prendergast Bros	Stovepipe and oil cans	3 30
1725	Register of Deeds	Recording deed	75
1726	P. Kelly	Stone	35 71
1727	John Caulfield, sec'y	Paid for stamps and gas bill	13 67
1728	A. G. Foster	Fuel	494 38
1729	Jacob Hammer	7 lbs. harnessleather	2 75
1730	Taylor & Craig Co	Carpenter work	9 82

No of Voucher.	Name.	Claim.	Amount.
1731	Clerk of District court	Copy of papers, etc	13 95
1732	Fairbanks, Morse & Co	1 1000 inch beam scale for test-meters	5 00
1733	Peter Joseph Hahn	Right of way	50 00
			$4,616 73

MARCH, 1885.

1734	John Caulfield, sec'y	Pay-roll for February 1885	$ 3,140 11
1735	A. G. Foster	Fuel	972 62
1736	Wilson & Rogers	Pipe fittings	12 57
1737	W. F. Bailey & Co	Brass fittings and repairs	36 73
1738	John Bell	12 barrels L. cement	18 00
1739	Farwell, Ozmun & Jackson	Hardware	3 49
1740	Moeller, Pederson & Co	Map roller and setting	12 20
1741	John Martin Lumber Co	Lumber	35
1742	St. Paul Book & Stationery Co	Blanks and mapping material	13 72
1743	The Globe Publishing Co	Advertising	19 76
1744	P. H. Kelly Mercantile Co	Powder, fuse, oil, etc	97 90
1745	McNamee & Keigher	Feed	16 22
1746	J. DeGraw & Sons	Lumber	2 21
1747	Harrington & Co	Plumbing repairs	2 65
1748	Register of Deeds	Recording deed	75
1749	Frank Skok	Blacksmithing	51 11
1750	Holly Mnf'g Co., Lockport, N. Y	Valve packing	41 67
1751	H. P. Rugg & Co	Pipe and fittings	31 92
1752	Duggan Bros	Blacksmithing	24 55
1753	P. Boerringer & Sons	Engineer's instruments, etc	19 20
1754	Minnesota Coffee & Spice Co	500 high service bills	3 50
1755	John Caulfield, sec'y	Cash adv. for hay, stamps, etc	22 70
1756	Auerbach, Finch & Van Slyck	Material and time, map roller	2 54
1757	Geo. Reis, city treasurer	Interest and exchange, $600,000 5 per cent. bonds, 6 months	15,037 50
			$19,583 97

APRIL, 1885.

1758	John Caulfield, sec'y	Pay-roll for March 1885	$ 3,383 63
1759	Patrick Barrett	Kalsomining second floor	7 00
1760	W. F. Bailey & Co	Brass goods and repairs	212 18
1761	F. M. Towar	Estimate No. 1, drayage	70 28
1762	Wm. Freeman, White Bear	75 blasting timbers, 25	18 75
1763	P. Pepin, Little Canada	Making bolts, gate house	50
1764	J. S. Burris	2 m sewer brick @ 10.50	21 00
1765	P. H. Kelly Mercantile Co	Powder, fuse and oil	74 57
1766	McNamee & Keigher	Feed	14 99
1767	Bristol & McArthur	1 6qr. deed Record	6 77
1768	Register of Deeds	Recording deeds	9 75
1769	Pollock, Donaldson & Ogden	Lampwick	40
1770	Frank Skok	Blacksmithing	67 07
1771	Duggan Bros	Blacksmithing	96 75
1772	T. M. Metcalf	Lawn grass seed, pump house	4 00
1773	Geo. J. Mitsch & Co	Oil, gasoline, soap, etc	12 96
1774	Farwell, Ozmun & Jackson	Shovels, pick handles, etc	145 35
1775	Wilson & Rogers	Pipe fittings and pipe	73 70
1776	St. Paul Book & Stationery Co	Stationery	3 80
1777	Richard Hazzard	Plastering and patching	11 50
1778	R. W. Bell,	copy court decree, vacating streets and alleys in Vadnai's lake villas	5 00

No. of Voucher.	Name.	Claim.	Amount.
1779	The Globe Publishing Co.	Printing and advertising	39 40
1780	Minnesota Coffee and Spice Co.	Job printing	8 50
1781	Pioneer Press	Blank books, etc.	5 85
1782	Slater & Riley	Horse shoeing	12 25
1783	J. DeGraw & Sons	Lumber	16 98
1784	John Bell	Lime and cement	6 40
1785	A. G. Foster	Fuel	651 75
1786	J. W. Henion, supt. Minneapolis Water Works	Divers and suits, Vadnais lake	19 00
1787	John Caulfield, sec'y	Cash advanced for sundries	30 84
1788	H. P. Rugg & Co.	Pipe and fittings	22 27
1789	Robinson & Cary	Plumbago and rubber belting	3 83
			$5,057 02

MAY, 1885.

1790	John Caulfield, sec'y	Pay-roll for April, 1885	$ 4,967 63
1791	R. D. Wood & Co. Philadelphia	Fire hydrants	5,096 00
1792	Boston Mach. Mfg. Co., Boston	Water gates	2,363 50
1793	Henry R. Worthington, N. Y.	Meters	390 15
1794	Bingham & Taylor, Buffalo	Valve and stop boxes	1,181 80
1795	F. M. Towar	Estimate No. 2, drayage	556 38
1796	The North West Teleph. Ex. Co	Rent 6 instruments, 1 year to May 1, '86, @ 10.00	60 00
1797	Rhodes & Morton	Crow bars and ledges	6 67
1798	Moller, Pederson & Co.	10 dirt rammers, 1 12 ft. roller.	7 75
1799	K. P. Callen	Livery and use of wagon	7 50
1800	Taylor & Craig Co.	Carpenter work	43 31
1801	Frank Skok	Blacksmithing	54 71
1802	Farwell, Ozmun & Jackson	Hardware and tools	44 95
1803	Schlick & Co.	1 pair rubber boots	15 60
1804	D. C. Curtice	1 numbered map	1 00
1805	St. Paul Book & Stationery Co	1 doz. time books	4 40
1806	R. D. Czikowitz	Paint'g and letter'g water guages	3 50
1807	McNamee & Keigh	Feed	17 09
1808	J. DeGraw & Sons	Lumber	31 07
1809	Chas. Friend	Harness repairs, Steve Cook	13 05
1810	P. H. Kelly Mercantile Co.	Powder, fuse, oil and candles	84 54
1811	Register of Deeds	Recording court decree	1 25
1812	H. P. Rugg & Co.	Pipe and fittings	87 76
1813	W. F. Bailey & Co.	Brass fittings and repairs	78 30
1814	Pollock, Donaldson & Ogden	Lanterns and globes	8 40
1815	J. H. Fielding	Relaying pavement	84 27
1816	Duggan Bros	Blacksmithing	75 30
1817	Robinson & Cary	Unpacking and wheelbarrows	295 76
1818	Auerbach, Finch & VanSlyck	Hanging map and linoleum	14 25
1819	John Bell	8 barrels cement	12 00
1820	Prendergast Bros.	Water pails, oil cans, etc.	7 55
1821	St. Paul Dispatch	Advertising	1 00
1822	A. G. Foster	Fuel	13 50
1823	E. P. Allis & Co., Milwaukee	Estimate No 2, pumps	4,000 00
1824	J. H. Fielding	Relaying pavement	75 10
1825	Keany Bros.	1 inlet pipe Vadnais lake	215 00
1826	St. Paul Foundry Co.	Plugs, manhole covers, etc.	122 06
1827	Griggs Bros.	Hay	3 29
1828	Pioneer Press Co.	Blank books and advertising	8 75
1829	John Caulfield, sec'y	Cash advanced to pay freight, etc	30 15
1830	Shickle, Harrison & Howard Co.,	Iron pipe and specials	46,043 62
1831	Wm. S. Moore	Legal services	100 00
1832	Peter Berkey	Bills payable and interest	30,915 83

No. of Voucher.	Name.	Claim.	Amount.
1833	Merchants National Bank	Bills payable and interest	26,020 27
1834	First National Bank	Bills payable and interest	26,040 97
1835	National German American B'k	Bills payable and interest	25,904 17
1836	Second National Bank	Bills payable and interest	20,630 00
1837	Peter Pepin, Little Canada	Trees for pumping station	25 00
1838	J. H. Bryant	Trees for pumping station	79 40
1839	Shickle, Harrison & Howard Co St. Louis	Estimate No. 2, pipe and specials	3,927 67
1840	Minnesota Shot and Lead Co	Lead pipe and pig lead	4,830 61
1841	Geo. Reis, city treasurer	Int. and exchange due June 1, '85	7,017 50
			$211,619 33

JUNE, 1885.

1842	John Caulfield, sec'y	Pay-roll for May, 1885	$ 8,501 62
1843	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	5,549 85
1844	R. D. Wood & Co. for Florence Iron Works, Philadelphia	52 hydrants	2,704 00
1845	Boston Mach. Mfg. Co., Boston	Watergates	1,810 00
1846	Henry R. Worthington, N. Y.	5 meters	227 25
1847	Isted & Halsted, Milwaukee	1 barrel engine oil	24 53
1848	F. M. Towar	Estimate No. 3, drayage	431 62
1849	Frank Skok	Blacksmithing	48 85
1850	Bristol & McArthur	Blank books	3 00
1851	Scribner Roofing and Cornice Co	1 box for tapping machine	3 25
1852	John Martin Lumber Co	Fencing for pump house	133 39
1853	P. H. Kelly Mercantile Co	Powder, fuse and oil	83 74
1854	Minnesota Coffee and Spice Co.	Job printing	20 00
1855	St. Paul Foundry Co	1 manhole	12 00
1856	Geo. J. Mitsch & Co	Gasoline, turpentine, etc	9 22
1857	Adam Decker	Hardware	1 65
1858	McNamee & Keigher	Feed	24 44
1859	Depew & Co	Raising value rod pump house	3 05
1860	Pollock, Donaldson & Ogden	Lanterns and globes	5 35
1861	John Bell	Lime and cement	18 80
1862	A. G. Foster	Fuel	39 00
1863	H. P. Rugg & Co	Pipe and fittings	14 54
1864	Farwell, Ozmun & Jackson	Hardware and tools	253 42
1865	Wilson & Rogers	Pipe fittings	32 37
1866	W. F. Bailey & Co	Brass fittings and repairs	188 37
1867	J. F. Collins & Co	Hay	2 43
1868	John Caulfield, sec'y	Cash advanced freight, etc	29 25
1869	J. H. Fielding	Relaying pavement	184 86
1870	St. Paul & Duluth R. R. Co	Damages	45 00
1871	Capitol Iron Works	Repairing valves, gate house	38 50
1872	E. Labore	200 posts, Vadnais lake	20 00
1873	Shickle, Harrison & Howard Iron Co., St. Louis	No. 4 estimate pipe and specials	10,534 10
1874	Boston Mach. Mfg. Co., Boston	Estimate No. 3, water gates	2,865 50
1875	Duggan Bros	Blacksmithing	69 45
1876	J. S. Burris	7 m sewer brick	79 50
1877	Thomas Flannery	Blacksmithing	3 90
1878	Charles Friend	Harness fixtures	1 15
1879	Hough & Gear for Maxfield & Seabury	Bill of Maxfield & Seabury	1,272 18
1880	J. L. Rood	Estimate No. 4 and final, dwell'gs	284 06
1881	J. C. Fielding for S. P. Folsom, jr	Repaving on Broadway	224 66
			$35,797 85

JULY, 1885.

No of Voucher.	Name.	Claim.	Amount.
1882	John Caulfield, sec'y	Pay-roll for June, 1885	13,569 07
1883	Geo. Reis, city treasurer	Interest due July 10, 1885	6,448 00
1884	Edward Paul, Little Canada	Building bridge over conduit	13 50
1885	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	13,350 19
1886	Geo. W. Sherwood & Co	Final estimate, piling	571 45
1887	T. M. Towar	Estimate No. 4, drayage	388 04
1888	P. H. Kelly Mercantile Co	Powder, fuse, etc	79 50
1889	Bristol & McArthur	Stationery	1 05
1890	Noyes Bros. & Cutler	3 gallons iron varnish	1 80
1891	Myers & Finch	Clock for pump house	5 00
1892	Pollock, Donaldson & Ogden	Lanterns and fixtures	7 30
1893	St. Paul Book & Stationery Co	Stationery	3 54
1894	Moeller, Pederson & Co	15 pine blocks	10 50
1895	Thomas Flannery	Blacksmithing	3 25
1896	John Bell	8 barrels L. cement	12 00
1897	Rhodes & Morton	Tools	4 43
1898	St. Paul Cement Pipe Works	Cement pipe	13 64
1899	Jacob Hammer	Leather tool bag, etc	5 05
1900	A. G. Foster	Wood	28 50
1901	Slater & Riley	Horse shoeing	17 00
1902	J. DeGraw & Sons	Lumber	33 84
1903	Duggan Bros	Blacksmithing	70 50
1904	Frank Skok	Blacksmithing	50 35
1905	McNamee & Keigher	Feed	13 72
1906	Wm. Freeman, White Bear	76 blasting timbers	19 00
1907	Pioneer Press Co	Blank books, etc	18 00
1908	Minnesota Coffee & Spice Co	Job printing	7 00
1909	Schnell & Upheber	2 ladders	7 00
1910	Farwell, Ozmun & Jackson	Tools and hardware	101 25
1911	Adam Decker	Hardware	1 70
1912	The Globe Publishing Co	Advertising, proposals, etc	15 81
1913	Bingham & Taylor, Buffalo, N.Y	Valve and stop boxes	1,690 65
1914	Robinson & Cary	Tools, etc	54 76
1915	H. P. Rugg & Co	Pipe and fixtures	46 77
1916	G. J. Mitsch & Co	Gasoline, etc	10 19
1917	Schlick & Co	2 pair rubber boots	5 20
1918	W. F. Bailey & Co	Brass fittings and repairs	259 70
1919	S. D. Hillman....½ exp. stenographer, Wilson & Rogers vs. Board Water Commissioners		71 25
1920	J. H. Fielding	Relaying pavement	232 37
1921	Daily Globe	Daily April to July 1st	2 70
1922	Taylor & Craig Co	Use jack screws and carp work	53 65
1923	John Caulfield, sec'y	Cash adv. for hay, freight, stamps	27 35
1924	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	10,438 70
1925	Geo. Reis, city treasurer	Int. to Aug. 1, $150,000.00 bonds	3,759 35
1926	Clerk of District Court	Copy decision Wilson & Rogers v. Board Water Commissioners	11 15
			$51,534 77

AUGUST, 1885.

No of Voucher.	Name.	Claim.	Amount.
1927	John Caulfield, sec'y	Pay-roll for July, 1885	13,060 65
1928	Minnesota Shot and Lead Co.	Lead pipe	1,814 63
1929	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	7,836 66
1930	T. M. Towar	Estimate No. 5, drayage	467 07
1931	Wm. F. Bailey & Co	Brass fittings	355 03
1932	Pollock, Donaldson & Ogden	Lanterns and globes	2 30
1933	Prendergast Bros	Water pails and dippers	3 35
1934	St. Paul Cement Pipe Works	Cement pipe	3 72
1935	P. H. Kelly Mercantile Co	Powder, fuse	65 85
1936	A. G. Foster	Fuel	21 00
1937	St. Paul Book & Stationery Co	Stationery and printing	2 85
1938	J. DeGraw & Sons	Lumber	23 92
1939	Pioneer Press Co	Blank books	13 25
1940	Stevens & Robertson	1 picture frame, etc	1 55
1941	J. W. Cunningham	2 m envelopes	2 50
1942	Taylor & Craig Co	2 days carpenter work	6 00
1943	Noyes Bros. & Cutler	Iron varnish, paint, etc	13 69
1944	Abstract Clerk	Abstract reserve Vadnais	1 40
1945	R. D. Wood & Co., Philadelphia	Fire hydrants	1,300 00
1946	Duggan Bros	Blacksmithing	98 30
1947	Frank Skok	Blacksmithing	26 45
1948	John Bell	19 barrels cement	28 50
1949	Adam Decker	Hardware	4 57
1950	Prince & Shandrew	Insurance	30 00
1951	Jno. Rogers, Jr. and Bro	Insurance	20 00
1952	McNamee & Keigher	Feed	27 44
1953	Slater & Riley	Horse shoeing	5 50
1954	Jno. O'Sullivan	Damage to wall	5 00
1955	J. H. Fielding	Relaying pavement	358 20
1956	Shickle, Harrison & Howard Iron Co., St. Louis	Cast iron pipe and specials	7,177 32
1957	H. R. Worthington, N. Y	Meters	307 92
1958	National Meter Co., N. Y	Meters	40 75
1959	Crosby Steam Gage and Valve Co., Boston, Mass	3—1½ relief valves	24 00
1960	John Martin Lumber Co	Lumber	296 86
1961	H. P. Rugg & Co	Pipe and fittings	113 24
1962	Robinson & Cary	Hose, valves and fittings	51 92
1963	Wilson & Rogers	Pipe and fittings	13 40
1964	Geo. J. Mitsch & Co	Oil, gasoline, etc	6 39
1965	Farwell, Ozmun & Jackson	Tools and supplies	46 60
1966	John Caulfield, sec'y	Bills paid as per vouchers, freight, postage, etc	22 45
1967	Alfred Wharton & A. K. Barnum	Land in Vadnais Lake villas, Transfer Reserve villas	75 00
1968	Jno. Farrington & C. A. Morton	Land in Vadnais Lake villas, Transfer Reserve villas	75 00
1969	H. W. Helfmann	Oil pans and cups, engine house	25 00
1970	J. S. Burris	2 M sewer brick $10	20 00
1971	Jadok Kohler	Labor on roads	89 79
			$33,985 02

SEPTEMBER, 1885.

No of Voucher.	Name.	Claim.	Amount.
1972	John Caulfield, sec'y	Pay-roll for August, 1885	$ 10,169 10
1973	Shickle, Harrison & Howard Iron Co	Pipe and special castings	6,228 50
1974	Boston Mach. Mfg. Co., Boston	Water gates	122 00
1975	F. M. Towar	Estimate No. 6, drayage	392 89
1976	Pioneer Press Co	Blank books	37 75
1977	J. B. Dow	Relaying stone walks	30 00
1978	Slater & Riley	Horse shoeing	9 50
1979	A. G. Foster	Fuel	53 25
1980	C. C. Miles	Key, whistle and transom lift	3 90
1981	St. Paul Book and Stat'y Co	Stationery	3 49
1982	McNamee & Keigher	Feed	31 21
1983	P. H. Kelly Mercantile Co	Powder, fuse and oil	54 03
1984	J. DeGraw & Sons	Lumber	15 90
1985	Duggan Bros	Blacksmithing	127 15
1986	H. P. Rugg & Co	Pipe and fittings	49 95
1987	Robinson & Cary	Pipe and fittings	4 41
1988	St. Paul Cement Pipe Works	Cement pipe	7 74
1989	John Bell	16 barrels cement	24 00
1990	Geo. J. Mitsch & Co	Gasoline, sulphur, etc	6 16
1991	Pollock, Donaldson & Ogden	Cuspidores, wicks, etc	5 80
1992	Farwell, Ozmun & Jackson	Tools and hardware	45 75
1993	W. F. Bailey & Co	Brass fittings and repairs	229 19
1994	St. Paul, M. & Manitoba R'y	Rep. track on Grove, over pipe.	43 50
1995	Minnesota Coffee and Spice Co.	Job printing	12 00
1996	Fk. Skok	Blacksmithing	1 05
1997	St. Paul Foundry Co	Manhole covers, etc	45 75
1998	J. J. Palmer	Estimate No. 6, pumphouse	206 75
1999	Wilson & Rogers	Pipe and fittings	3 67
2000	Register of Deeds	Recording deed	2 25
2001	Wm. S. Moore	Fees, referee Wilson & Rogers vs. Board	40 00
2002	Taylor & Craig	Carpenter work	7 50
2003	Geo. Reis, city treasurer	Int. and exchange due Oct. 1, '85	25,062 50
			$43,076 64

OCTOBER, 1885.

No of Voucher.	Name.	Claim.	Amount.
2004	John Caulfield, sec'y	Pay-roll for September	$ 10,088 56
2005	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	4,339 44
2006	H. P. Rugg & Co	Pig lead, etc	2,171 33
2007	St. Paul Foundry Co	Iron floor, pump house	1,649 84
2008	J. I. Beaumont	Making frontage tax for 1885	250 00
2009	Charles Friend	Harness repairs, etc	9 55
2010	Marr & Richards	3 Inspector's badges	6 00
2011	J. W. Doherty	Catch basin stone	11 00
2012	Taylor & Craig Co	Use jack screws	75
2013	J. DeGraw & Sons	Lumber	2 50
2014	St. Paul Book & Stationery Co	Stationery	5 00
2015	J. J. Palmer	Estimate No. 1, shop and stable	680 00
2016	F. M. Towar	Estimate No. 7, drayage	196 56
2017	Atlantic Oil Co., Cleveland, O.	2 barrels oil	54 22
2018	John Caulfield, sec'y	Bills paid, hay, gas, etc	38 65
2019	J. H. Fielding	Repaving streets, etc	90 36
2020	Daily Globe	3 mos. daily, to Oct. 1st	2 70
2021	Rogers, Willis & Co	Valves and unions	24 18
2022	Geo. J. Mitsch & Co	Gasoline, etc	8 05
2023	Mœller, Pederson & Co	Derricks, poles and rollers	7 00
2024	D L. Curtice	Surveying lot 13, bl'k 9, St. P. P	15 00
2025	W. F. Bailey & Co	Brass fittings	432 83
2026	P. H. Kelly Mercantile Co	Powder, fuse and oil	88 15
2027	R. D. Wood & Co., Phila., Pa.	50 hydrants and fixtures	2,633 00
2028	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	2,084 03
2029	N. J. Watterman, Detroit, Mich	1 damper regulator, for boilers.	85 00
2030	Robinson & Cary	Gasket packing, etc	50 52
2031	John Bell	28 bbls cement @1.40	39 20
2032	Schlick & Co	5 pairs hip boots	18 75
2033	Strong, Hacket Hardware Co.	Wire fence, gate house	9 96
2034	Minnesota Coffee and Spice Co.	Job printing	15 25
2035	St. Paul Foundry Co	Manhole and plugs	46 50
2036	Richard Price	Veterinary services	6 00
2037	Slater & Riley	Horse shoeing	4 50
2038	Prendergast Bros	Cleaning furnace and 1 can	2 30
2039	H. P. Rugg & Co	Pipe and fittings	40 20
2040	A. G. Foster	Fuel	196 50
2041	Farwell, Ozmun & Jackson	Tools, and 1 oil can	58 90
2042	L. G. Kewton	Sharpening tools	41 85
2043	Duggan Bros	Sharpening tools	69 60
2044	McNamee & Keigher	Feed	19 30
2045	St. Paul Rubber Co	Rubber goods	4 91
2046	Miller & Doyle	Rebuilding pier at Nachtsheim, Sixth and Seventh streets	7 00
2047	Pollock, Donaldson & Ogden	Lantern	6 75
2048	J. S. Burris	2,000 sewer brick	21 00
2049	H. P. Rugg & Co	Lead pipe	1,579 68
2050	Nat. Meter Co., New York	12 meters (Empire)	232 44
2051	Bingham & Taylor, Buffalo	Stop boxes	360 00
2052	J. H. Fielding	Relaying pavement	107 34
2053	J. J. Palmer	Estimate No. 2, new shop, etc	1,020 00
2054	Wm. Freeman, White Bear	Blasting timbers	12 75
			$28,944 90

NOVEMBER, 1885.

2055	John Caulfield, sec'y	Pay-roll for October	$ 9,393 90
2056	Taylor, Craig & Co	Carpenter work	7 64
2057	Strong, Hacket & Co	Hardware	16 56
2058	St. Paul Book & Stationery Co	Stationery	15 53
2059	F. W. Luly	Lard	2 00
2060	Scribner Roofing and Cornice Co	Roofing for storage shed	23 40
2061	Minn. Shot and Lead Co	Lead pipe	70 84
2062	American M'fg. Co	Plan tramway, pump house	15 00
2063	Hartford Steam Boiler Inspec. and Ins. Co	Inspection and insurance on machinery at pump house	50 00
2064	Bingham & Taylor	Service boxes	120 00
2065	National Meter Co., N. Y.	4 meters	154 25
2066	Crosby Steam Gauge & Valve Co	3 springs, for valves	3 75
2067	Adam Decker	Stove for shop	9 00
2068	Slater & Riley	Horse shoeing	6 00
2069	St. Paul Cement Pipe Works	Cement pipes	1 64
2070	DeGraw & Sons	Lumber	21 71
2071	McNamee & Keigher	Feed	17 64
2072	Jno. Dowlan	3 cords slabs	9 75
2073	Farwell, Ozmun & Jackson	Tools and hardware	10 71
2074	Duggan Bros	Blacksmithing	72 40
2075	Pioneer Press Co	Blank books	75 50
2076	Geo. J. Mitsch & Co	Gasoline, etc	16 90
2077	J. J. Palmer	Est. No. 3, final, shop and barn	473 47
2078	W. F. Bailey & Co	Brass goods and repairs	512 94
2079	H. P. Rugg & Co	Pipe and fixtures	182 64
2080	John Bell	Cement	48 25
2081	Wm. S. Moore	Legal services	225 00
2082	George Reis, city treasurer	Int. and exchange due Dec. 1, '86	7,017 50
2083	Rhodes & Morton	Iron	55
2084	Prendergast Bros	Stove pipe and setting up	3 95
2085	Chas. Friend	Harness and repairs	21 10
2086	Pollock, Donaldson & Ogden	Lamp wicks and globes	1 63
2087	L. G. Kweton	Blacksmithing	45 05
2088	Robinson & Cary	Gasket packing	55 84
2089	P. H. Kelly Mercantile Co	Powder, fuse, oil	58 45
2090	Minnesota Coffee and Spice Co.	1000 postals and printing	11 25
2091	F. M. Towar	Est. No. 8, and final, drayage	270 22
2092	A. G. Foster	Fuel	584 91
2093	John Caulfield, sec'y	Cash advanced for hay, fr't, etc.	40 24
2094	Shickle, Harrison & Howard Iron Co., St. Louis	Pipe and special castings	157 32
2095	Scribner Roofing & Cornice Co.	New gate for intake at Vadnais L	350 00
			$20,174 43

Grand total $522,971 24

METERS.

The total number of meters in use at the present time is one hundred and sixty-five, (165), the sizes and kinds of which are given below.

KIND.	SIZES.								Total.
	½	⅝	¾	1	1½	2	3	4	
Worthington			7	8	10	1	2		28
Union-Rotary		15	10	10	9	1	1		46
Union-Piston	2	22	15	14	2				55
Crown		3	7	8	5	1			24
Empire	1		7	4					12
Self register on elevator								1	1
Total	3	40	46	44	26	3	3	1	166

SHUTTING OFF AND TURNING OFF FROM DEC. 1, 1884, TO DEC. 1, 1885.

	HIGH SERVICE	LOW SERVICE	Tot'l
Shut off for repairs	9	247	256
Shut off for non-payment	5	194	199
Shut off for premises vacant	9	244	253
Shut off for violation of rules		1	1
Total	23	686	709
Turn on, old services	13	532	545
Turn on, new services	664	339	1003
Turn on, for builders		54	54
Total	677	925	1602

Total shut off and turn on 2,311
Total shut off and turn on for previous years 1,014

SUPERINTENDENT'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1st, 1885.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—In compliance with duty I have the privilege to present to your Hon. Board, my fourth annual report, which will inform you of the present condition of the works and the amount done during the past season. I also lay before you the recommendations, estimates, and size of pipe I would recommend to be laid the coming year.

I have re-laid Third street from Pleasant avenue to College avenue; Sixth street, from Robert to Minnesota street; Waverly Place, from Westminster to Stillwater; Westminster, from Waverly Place, 680 feet north with six inch pipe in place of four; the supply from the four inch being insufficient for the extension necessary. Robert, from Third to Fourth; Ninth, from Broadway to Jackson, was re-laid on account of the old pipe being damaged by frost. Pearl, from Broadway to Jackson, and Twelfth, from Jackson to Robert, were re-laid with 20 inch pipe to give a proper supply of water in the vicinity of the capitol, the old six inch being insufficient for the requirements. Grove street, from Mississippi to Lafayette avenue, was re-laid on account of grading of this street. The mains are now in good repair for the coming winter.

The repairing of valves was small. The principal was the changing of the old wooden to iron boxes. I never have had any trouble to operate the Boston Machine Co.'s valves. It is very difficult to operate the old valves with our water. If they stand six months or a year without using, they will stop before coming to their seat. The repairs of hydrants the past season were large, owing to the changing of their location, caused by the paving and grading of streets. I had to change 33 from paving and grading, 14 on account of freezing. I had very little trouble last winter, from the hydrants getting frozen, when compared to other winters, although having a great many more in service, and the winter being exceedingly severe. I do not anticipate much trouble from them the coming winter, although having a much larger number now in service. I placed 176 hydrants in service this season, making a total of 491 fire hydrants in the city.

I have laid on low service 3,690 feet four inch pipe, 9,634 feet six inch, 3,668 feet twelve inch, 4,190 feet sixteen inch, and 3,742 feet twenty inch, making a total of four miles 3,742 feet. On high service, St. Anthony Hill, I laid 4,930 feet four inch, 53,017 feet six inch, 6,000 feet twelve inch, 9,210 feet sixteen inch, and 1,154 feet twenty inch pipe, making a total of 14 miles and 291 feet. On high service, Dayton Bluff, I laid 10,835 feet six inch pipe, 2,975 feet twelve inch, and 11,440 feet sixteen inch pipe. total length being 4 miles and 4,130 feet. On high and low service I laid this season 23 miles and 2,583 feet. With the abandonment and alteration of mains, we have now on high and low service sixty-seven miles and 4,100 feet. We abandond 2,400 feet sixteen inch pipe on account of the grading of streets, where the pipe ran diagonally across lots and streets from DeSoto to Farquier. It has been my good fortune to superintend all the above work without either litigation or casuality to any person. There have been 365 service pipes put in on low service, and 644 on high, which is more than double the amount ever put in during a single year in this city, which shows our citizens appreciate pure lake water in preference to river water. There were 26 old services re-laid. The present number of consumers being 3,940. I am now at our winter's work on Goodrich avenue, from West Seventh to Western, Eighth street to connect with Wabasha street main to give proper circulation; Washington, from Fifth to Sixth streets, and Franklin, from Fifth to Seventh. I had an iron cover put on manhole north of Little Canada, and a safety gate and gate house erected at Vadnais lake, also safety screens at terminal chamber to prevent any obstacle entering our pipe system; all of the above being ordered by your Honorable Board last spring. There ought to be another inlet pipe put in the lake from gate house, to prevent it being damaged by frost during the coming wither. At the first time Vadnais lake can be drawn down four or five feet below zero, all weeds, grass and vegetable deposits should be removed, down to the sand; it would purify the water and beautify the lake. Owing to the high water in July and August it was impractable to improve the canal from Vadnais to Pleasant lake.

I regard a low service reservoir as almost indispensable to enable us to properly clean the conduit. The risk of shutting the water off the city for the cleansing of it would be too dangerous, as one fire might be more costly to the city than the expenditure for the construction of a reservoir.

The conduit needs some repairing, which cannot be done with the necessary supply of water in it. If it were empty the outlay for its repairs would be small.

I had no time during the past year to give West St. Paul the attention I desired, but will spend some during December in that part of the city, with some officers of the Board, to lay out the system for their supply.

The map of our pipe system which I made mention of in my last report, was completed last winter. It is pronounced by competent judges, to be a mas-

ter piece of workmanship. This year's work has not been traced upon it yet, but will be very soon.

It will be necessary to do considerable work north of Pleasant lake this season, to increase our supply in case of a dry season. We are now using 250,000 gallons daily on high service, and 2,500,000 on low service.

The main which supplies Dayton Bluff, has a pressure of 145 lbs to the square inch, in Trout Brook, between Kittson street and Seventh. I had the pressure taken of the fire hydrants this fall, so a person can discover at a glance, the pressure in any part of the city. From the circumstances under which the pressure was taken, it is liable to vary five per cent. The pressure on Dayton's Bluff varies from 59 to 110 pounds.

The St. Paul & Nothern Pacific R. R. with their line and grade, made it necessary to re-lay the old sixteen inch main, (Lake Phalen supply) at Lafayette avenue, and the thirty inch main on Mississippi street, to lower it three feet six at Trout Brook. This we did with full pressure. A part of this pipe was laid on piling and a part on earth foundation. If any mishap should happen in the above work the low service would be deprived of water.

The 24 inch main which supplies the high service system, we had to lower five feet where the N. P. R. R. crosses Dale street, the expense of which was paid for by the railroad company.

I would recommend the extension of mains on streets as fast as they are graded, if there would seem to be any show of consumers, being necessary for fire protection, not only for sanitary reasons, but on business principles, as distribution mains are self supporting after being laid. When houses are built where there are water mains they invariably put in water. If there are no water mains on the street they usually build cisterns and sink wells, so when the water mains are run in they may be from three to ten years before becoming water consumers.

There ought to be a store house and barn built at the pumping station, as there are a great number of tools and a truck for which there is no storage.

The water was put on St. Anthony Hill on Dec. 5, 1885. The pumping engines have not yet received their final test.

In conclusion, I return my thanks to the President, the members of your Honorable Board, and Mr. John Caulfield, Secretary, for your uniform courtesy and kindness to me.

I have the honor to remain, gentlemen,

Yours respectfully,

J. B. OVERTON,

Superintendent.

PIPE RECOMMENDED TO BE LAID ON GRAVITY SYSTEM DURING THE YEAR 1886.

Street.	From Street to Street.	No. of feet and size of pipe.				
		4 in.	6 in.	12 in	16 in	20 in
Tenth	Cedar to Fort					1300
Fourth	Broadway to Kittson			1850		
Kittson	Fourth to Fifth		300			
Third	John to Broadway		750			
John	Third to Prince		300			
Fifth	Broadway to John		800			
Tenth and Olive	Grove to Broadway	700				
West Seventh	Webster to Lee avenue				2800	
Jefferson	Seventh to Webster			500		
Webster	North of Jefferson		300			
Lee avenue	Seventh to Drake		1450			
Sherman	Seventh to Pleasant avenue		900			
Garfield	Prairie to Goodrich avenue		650			
Forbes	Goodhue to Goodrich avenue		600			
Prairie	Douglas to Garfield		650			
Banfil	Seventh to Forbes	900				
Banfil	Seventh to Western avenue		750			
Goodhue	Seventh to Richmond		1100			
Franklin	Chestnut to Elm	1600				
Walnut	Washington to Exchange	900				
Payne	Omaha R. R. to Minnehaha		800			
Minnehaha	Jessie to Payne		1000			
Reaney	Payne to Edgerton		600			
Decatur	Prebel to Bedford		800			
Bradley	Beaumont to Farquier		1100			
Bradley	Sixth to Seventh		300			
Sixth	Bradley to Duluth R. R.		200			
St. Paul	Olmsted to Pennsylvania ave		1000			
Pennsylvania avenue	L'Orient to Mississippi		300			
Robert	Eleventh to Fourteenth		1050			
Fourteenth	Robert to Jackson		450			
Ninth	Fort to Oak		375			
Washington	Fifth to Sixth	375				
Franklin	Sixth to Ninth	300				
Exchange	Wabasha to St. Peter	350				
Neill	Sixth to Seventh	275				
Eighth	Temperance to Minnesota	1100				
Robert	Seventh to Eighth		300			
Mississipppi	N. P. R. R. to Magnolia		2000			
Randolph	Seventh to View			1200		
	Hydrants	800				
		7300	18825	3550	2800	1300

4 inch pipe..... 7300
6 inch pipe.....18825
12 inch pipe..... 3550
16 inch pipe..... 2800
20 inch pipe..... 1300

33775 feet or 6 2095|5280 miles.

PIPE RECOMMENDED TO BE LAID ON ST. ANTHONY HILL DURING THE YEAR 1886.

Street.	From Street to Street.	No. of feet and size of pipe.				
		4 in.	6 in.	12 in	16 in	20 in
Rondo	Rice to Western		2600			
Martin	Rice to Arundel		3250			
Fuller	Rice to Kent		4600			
Aurora	Rice to Kent		4600			
Mackubin	Fuller to University avenue		650			
University avenue	Arundel to Dale			2000		
Josette	Carroll to Fuller		1300			
Ellen	Rice to Kent		4600			
Charles	Rice to Western avenue		2640			
Edmund	Marion to Western avenue		1700			
Farrington avenue	University avenue to Edmund		1000			
Como avenue	Rice to Western avenue					3300
Valley	Canada to Jackson				1350	
Jackson	Winter to Robert		600	200	100	
Robert	University avenue to Jackson		500			
Viola	Jackson to Grant		300			
Grant	Bianca to Sherburne		700			
Park avenue	Viola to Martin		1650			
Broadway	Fifteenth to Mt. Airy		400			
Mt. Airy	Broadway to Fairview		1400			
Fairview	Mt. Airy to Valley		300			
Marshall avenue	St. Albans to Victoria			2000		
Selby avenue	Dale to St. Albans		600			
Hague	Dale to Fisk		2150			
Division	Dale to Fisk		2150			
Hennepin avenue	Dale to Avon		1900			
Holly avenue	Dale to Avon		1900			
Portland	Dale to Avon		1900			
Lincoln avenue	Dale to Avon		1900			
Rice	Como avenue to Manitoba R. R.			1200		
Dale	Grand to Lincoln avenues			400		
Central avenue	Rice to St. Peter	500				
Viola	Rice to Park avenue		550			
Carrol	Kent to Dale		600			
Louis	Carrol to Fuller		1300			
Summit avenue	Dale to St. Albans			600		
Central	Grant to East		400			
Central Park	East Summit to Central aves	1000				
	Hydrants	800				
		2300	48140	6490	1450	3300

4 inch pipe..... 2300
6 inch pipe.....48140
12 inch pipe..... 6400
16 inch pipe..... 1450
20 inch pipe..... 3300

61590 feet or 11 3510|5280 miles.

PIPE RECOMMENDED TO BE LAID ON DAYTON'S BLUFF DURING THE YEAR 1886.

Street.	From Street to Street.	No. of feet and size of pipe.				
		4 in.	6 in.	12 in	16 in	20 in
East Seventh	Earl to Phalen				1300	
Margaret	East Seventh to Earl		2850			
Earl	East Seventh to Beech			1600		
Reaney	Arcade to Frank		3250			
Beech	East Seventh to Earl		2400			
Mendota	Hudson to Seventh			3300		
Sinnen	Sixth to Seventh		500			
Cherry	Hoffman to Maria		550			
Hope	Sixth to Seventh		500			
Eichenwold	Sixth to Seventh		500			
Maria	Hudson to McLean		1400			
Maria	East Seventh to Eighth		300			
Maple	East Seventh to Hastings		2600	800		
Minnehaha	East Seventh to Greenbriar			1900		
Fourth	Maria to Maple		1100			
Hudson	Cypress to Maple		1300	200		
Farquier	Arcade to Greenbriar		1350			
Greenbriar	Minnehaha to Farquier			650		
Point Douglas	Maple to Forest		1050			
Conway	Maria to Forest		2400			
Ravine	Maria to Maple	1050				
Wallace	Maple to Cypress		2250			
	Hydrants	800				
		1850	24300	8450	1300	

4 inch pipe..... 1850
6 inch pipe.....24300
12 inch pipe..... 8450
16 inch pipe..... 1300

35900 feet or 6 4220|5280 miles.

Total on Low Service.....33775
Total on High Service.....61590
Total on Dayton's Bluff.....35900

131265 feet or 24 4545|5280 miles.

ESTIMATE OF AMOUNT AND COST OF PIPE RECOMMENDED TO BE LAID TO DECEMBER 1, 1886, ON HIGH AND LOW SERVICE AND ON DAYTON'S BLUFF.

24 4545|5280 miles street mains, 3233 807|2000 tons, at $30.00.....	$97,002	10.5
Specials 90 " " 62.50.....	5,625	00
225 fire hydrants at $60.00, each set.....	13,500	00
Gates and boxes.....	7,907	50
Lead, 72 tons at $80.00. Hemp packing, 3 tons at $140.00.....	6,200	56
Excavation and laying.....	37,731	25
Extra for rock excavation.....	7,000	00
Drayage, 4,000 tons at 65 cents per ton.....	2,600	00
	$177,566	41.5

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID FROM DECEMBER 1, 1884, TO DECEMBER 1, 1885, ON LOW SERVICE.

Date.	Street.	From Street to Street.	No. of feet and size of pipe.				
			4 in.	6 in.	12 in	16 in	20 in
Dec. 30, '84	Exchange.....	Third to Fourth.....	240				
April 1, '85	St. Peter.....	Third to Fourth.....		276			
April 24, '85	Westminster.....	Extension to N. P. R. R.		392			
May 5, '85	Thirteenth.....	Mississippi to Canada....		750			
May 8, '85	West Seventh....	Goodrich to Grace.....				2720	
May 8, '85	Richmond.....	South of Seventh.....		27			
May 8, '85	St. Clair.....	East of Seventh.....		40			
May 8, '85	Western.....	South of Seventh.....		26			
May 8, '85	Yankee.....	East of Seventh.....	31				
May 8, '85	Banfil.....	East of Seventh.....	31				
May 8, '85	Temperance.....	Tenth to Pearl.....	867				

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID, FROM DEC. 1, 1884, TO DEC. 1, 1885 ON LOW SERVICE—*Concluded.*

Date.	Street.	From Street to Street.	No. of feet and size of pipe.				
			4 in.	6 in.	12 in	16 in	20 in.
May 8, '85	Norris	Temperance to Cooper	185				
May 14, '85	Cedar	Twelfth to Summit		272			
May 14, '85	Jackson	Twelfth to Pearl					108
May 14, '85	Twelfth	Jackson to Cedar					1274
May 16, '85	Chestnut	Washington to Exchange		704			
May 22, '85	Washington	Chestnut north	200				
May 25, '85	Pearl	Jackson to Grove					1175
May 25, '85	Eighth	245 feet west of Cedar	245				
May 22, '85	Grove	Pearl to Broadway					275
May 26, '85	Canada	Fourteenth to Fifteenth		240			
June 23, '85	McBoal	Seventh to Douglas		247			
June 23, '85	Douglas	Seventh to Ramsey		1106			
July 18, '85	Oak	Walnut to Ramsey		990			
July 30, '85	Bradley	Seventh to Woodward		245			
July 30, '85	Seventh	Grove to Duluth R. R.	350				
Aug. 1, '85	Broadway	Thirteenth to Fifteenth	498				
Aug. 5, '85	Seventh	Kittson to Brook		215			
Aug. 14, '86	Cedar	Tenth to Twelfth			6		614
Aug. 14, '85	Tenth	Cedar to Wabasha	13				42
Aug. 27, '85	Minnesota	Tenth to Twelfth	725				
Aug. 30, '85	Grace	Seventh to Colborne		62			
Aug. 30, '85	Colborne	Grace to Jefferson		632			
Sept. 29, '85	Goodhue	Seventh to Cliff		1000			
Sept. 29, '85	Burr	South of Farquier		185			
Sept. 30, '85	Duke	South of Seventh		25			
Oct. 2, '85	Smith	Wilkin to Leech		426			
Oct. 10, '85	Nash	Mississippi to L'Orient		325			
Oct. 10, '85	L'Orient	Nash to Thirteenth		400			
Oct. 10, '85	Jessie	Farquier to Minnehaha		640			
Oct. 10, '85	Minnehaha	Jessie to Bedford		90			
Oct. 10, '85	Bedford	Crossing Minnehaha		40			
Oct. 20, '85	Mt. Ida	DeSoto to Otsego		180			
Oct. 20, '85	Otsego	Crossing Mt. Ida		35			
Oct. 25, '85	Farquier	Paine to DeSoto			1982		
Oct. 25, '85	DeSoto	Lafayette to Farquier			1530		
Oct. 25, '85	Lafayette	Collins to DeSoto			150		
Oct. 25, '85	Beaumont	Crossing DeSoto		26			
Oct. 27, '85	John	Grove to Tenth	304				
Nov. 7, '85	Seventh	Grace to Stahlman's Brewery				1470	
Nov. 7, '85	Oneida	South of Seventh		36			
			3690	9634	3668	4190	3680

4 inch pipe 3690
6 inch pipe 9634
12 inch pipe 3668
16 inch pipe 4190
20 inch pipe 3680

24862 feet or 4 3742|5280 miles.

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID FROM DEC. 1, 1884, TO DEC. 1, 1885, ON ST. ANTHONY HILL.

Date.	Street.	From Street to Street.	No. of feet and size of pipe.				
			4 in.	6 in.	12 in	16 in	20 in
Dec. 20, '84	Neurer	20 feet west of Western.		20			
Dec. 20, '84	Blair	20 feet west of Western.		20			
Dec. 20, '84	Thomas	20 feet west of Western.		20			
Dec. 20, '84	Aurora	20 feet west of Western.		20			
Dec. 20, '84	Fuller	20 feet west of Western.		20			
Dec. 20, '84	Martin	20 feet west of Western.		20			
Dec. 20, '84	St. Anthony	20 feet west of Western.		20			
May 13, '85	Nina avenue	Laurel to Summit		400			
May 16, '85	Laurel	Western to Nina		1080			
May 21, '85	Virginia	Summit to Nelson		1827			
June 10, '85	Selby	Farrington to Dale		3350			
June 10, '85	Portland	Western to Dale		2640			
June 10, '85	Kent	Selby to Portland	1537				
June 10, '85	Mackubin	Dayton to Summit		2228			
June 10, '85	Arundel	Summit to Portland	388				
June 10, '85	Arundel	Selby to Laurel	425				
June 12, '85	Corrol	Western to Kent		1985			
Sune 12, '85	Kent	Carrol to Marshall	664				
June 12, '85	Mackubin	Rondo to 150 feet north of Marshall		1268			
June 15, '85	Rondo	Western to Mackubin		1312			
June 16, '85	Arundel	Marshall to Dayton	426				
June 16, '85	Marshall	Western to Dale		2640			
June 16, '85	Iglehart	Mackubin to Western		1326			
June 24, '85	Summit	Rice to Josette			1415		
June 26, '85	Third	Summit to College		567			
June 26, '85	College	Third to Rice		1245			
June 27, '85	Nelson	Western to Summit		2422			
June 30, '85	Carrol	Western to Rice		2900			
July 1, '85	Park Place	Park	560				
July 2, '85	Louis	Nelson to Carrol		830			
July 2, '85	Farrington	Dayton to Carrol		1130			
July 5, '85	Rice	Summit to Como		42	45	2436	1154
July 6, '85	Iglehart	Wabasha to Western		4298			
July 6, '85	Summit	Cedar to Rice		1491			
July 6, '85	Cedar	Summit to Central		689			
July 8, '85	Josette	Nelson to Carrol		820			
July 11, '85	Martin	Rice to Central		645			
July 11, '85	Tilton	Rice to Wabasha		1278			
July 13, '85	Wabasha	Summit to 25 feet north of Central	50	842			
July 13, '85	Central	Martin to Grant		756			
July 17, '85	Aurora	Grand to Robert		615			
July 17, '85	Robert	Aurora to University		78			
Aug. 1, '85	Summit	Dale, east			152		
Aug. 1, '85	Dale	Marshall to Grand			508	2640	
Aug. 8, '85	Rondo	West of Rice		42			
Aug. 15, '85	Lawton	Summit to Grand		480			
Aug. 15, '85	Floral	Summit to Grand	480				
Aug. 17, '85	Oakland	Summit to Lincoln		829			
Aug. 22, '85	Grand	Lawton to Victoria		4215			
Aug. 25, '85	Broadway	North of Fifteenth		40			
Aug. 25, '85	Fifteenth	Jackson to Broadway				1300	
Aug. 25, '85	Jackson	North of Fifteenth		28			
Sept. 2, '85	Marshall	Dale to St. Albans			620		
Sept. 2, '85	University	Arundel to Rice			3260		
Sept. 12, '85	Dayton	Dale to Fisk		2165			
Sept. 15, '85	St. Peter	Martin to University		1085			
Sept. 16, '85	University	Rice to Jackson				2294	

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID, FROM DEC. 1, 1884, TO DEC. 1, 1885, ON ST. ANTHONY HILL—*Concluded.*

Date.	Street.	From Street to Street.	No. of feet and size of pipe.				
			4 in.	6 in.	12 in	16 in	29 in
Sept. 16, '85	Park avenue	Crossing of University		90			
Sept. 21, '85	Grant	Aurora to Sherman		1164			
Sept. 21, '85	Sherburne	350 ft. east of Grant	400				
Sept. 24, '85	Canada	Fifteenth to Valley		280			
Sept. 24, '85	Valley	Fifteenth, west to No. 123 Valley				540	
Oct. 21, '85	Edmund	Rice to Marion		900			
Oct. 31, '85	Lincoln	Oakland to Dale		855			
			4930	53017	6000	9210	1154

Total 4 inch pipe..... 4,930
" 6 inch pipe.....53,017
" 12 inch pipe..... 6,000
" 16 inch pipe..... 9,210
" 20 inch pipe..... 1,154

74,211 feet or 14 291|5280 miles.

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID ON DAYTON'S BLUFF, FROM DEC. 1, 1884, TO DEC. 1, 1885.

Date.	Street.	From Street to Street.	No. of feet and size of pipe.				
			4 in.	6 in.	12 in	16 in	20 in
Aug. 25, '85	Broadway	Thirteenth to Fifteenth				533	
Aug. 25, '85	Thirteenth	Pine to Broadway				778	
Aug. 25, '85	DeBow	Grove to Thirteenth				387	
Aug. 25, '85	Grove	Seventh to DeBow				2618	
Sept. 21, '85	Bates	Seventh to Plum			2975		
Sept. 21, '85	Hudson	Maria to Maple		1065			
Sept. 21, '85	Third	Maria to Maple		1065			
Sept. 21, '85	Fourth	Maria, west 400 feet		400			
Sept. 21, '85	Fifth	Maria to Maple		1065			
Sept. 21, '85	Maria	Seventh to Hudson		2655			
Oct. 7, '85	East Seventh	Grove to Earl				7124	
Oct. 19, '85	Ross	Seventh to Earl		500			
Oct. 28, '85	Fifth	340 ft. west of Maria		354			
Oct. 30, '85	Farquier	Earl to Arcade		2572			
Oct. 31, '85	Hoffman	Sixth to Seventh		487			
Nov. 2, '85	Mendota	Seventh to Farquier		672			
				10835	2975	11440	

Total 6 inch pipe.....10,835
" 12 inch pipe..... 2,975
" 16 inch pipe.....11,440

25,250 feet, or 4 4130|5280 miles.

Total mileage of pipe laid on low and high service, and on Dayton's Bluff, from Dec. 1, 1884, to Dec. 1, 1885.

Low service..... 4 3742|5280 miles.
St. Anthony Hill H. S. 14 291|5280 miles.
Dayton's Bluff..... 4 4130|5280, making a total of 23 2583|5280. miles

LOCATION, SIZE AND No. OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1885.

Street or Avenue.	From Street	To Street.	No. of feet and size of pipe.							
			4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36
Acker street	West of Mississippi	Main	.....	22						
Banfil street	East of Seventh	.....	31							
Beaumont street	Bedford	DeSoto	.....	861						
Becker street	Lafayette	DeSoto	.....	450						
Bedford street	North	Minnehaha	.....	1318						
Bradley street	Seventh	North	.....	1247						
Broadway street	Manitoba R. R.	Fifteenth	693	1716	.....	1412	.....	1741		
Bruno street	East of Lafayette	.....	.....	47						
Burr street	Partridge	Farquier	.....	2633						
Canada street	Ninth	Fifteenth	.....	2055						
Cedar street	Third	Summit	.....	272	2573	.....	614			
Chestnut street	Seventh	Washington	.....	1235						
Colborne street	Grace	Jefferson	.....	632						
College avenue	Cedar	Oak	.....	1297						
Collins street	Lafayette	Bedford	.....	991						
Cooper street	Ninth	Norris	986							
DeBow street	Grove	William	.....	1710						
DeSoto street	Hopkins	Farquier	.....	425	1530					
Douglas street	Seventh	Ramsey	.....	1144						
Duke street	South of Seventh	.....	.....	25						
Eighth street	Wabasha	Neill	4603							
Eleventh street	Cedar	Olive	565	1259						
Elm street	Exchange	Short Line R. R.	406							
Exchange street	St. Peter	Wilkin	3694							
Farquier street	Paine	DeSoto	.....	.....	1982					
Fifth street	Kittson	Third	4849	1378						
Forbes street	Pleasant	McBoal	.....	1395						
Fort street	Third	Tenth	.....	1537						
Fourteenth street	Jackson	Canada	.....	950						
Fourth street	John	Exchange	.....	5692						

LOCATION, SIZE AND No. OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1885—(CONTINUED.)

Street or Avenue.	From Street.	To Street.	No. of feet and size of pipe.							
			4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36
Franklin street	Fourth	Sixth	200							
Genesee street	West of Mississippi	Main	.....	22						
Goodhue street	Seventh	Cliff	.....	1000						
Goodrich avenue	Seventh	Short Line R. R.	.....	1260						
Grace street	Seventh	Colborne	.....	72						
Granite street	West of Mississippi		.....	167						
Grove street	Monroe	Pearl	133	1300	.....	.....	341			
Hopkins street	DeSoto	Bradley	.....	700						
Jackson street	Levee	Fifteenth	40	4479	.....	.....	108			
Jessie street	Farquier	Minnehaha	.....	640						
John street	Fourth	Grove	930	835						
Kittson street	Fifth	Seventh	.....	546						
Lafayette avenue	Grove	DeSoto	205	.....	150	2070				
Leech street	Ramsey	Goodrich	.....	1102						
Levee	Sibley	Jackson	340							
Locust street	Seventh	Grove	.....	.....	.....	1025				
L'Orient street	Thirteenth	Nash	.....	400						
McBoal street	Wilkin	Douglas	.....	1281						
Market street	Third	Fourth	250							
Minnehaha street	Jessie	Bedford	.....	90						
Minnesota street	Third	Twelfth	2912							
Mississippi street	Grove	Terminal Chamber	.....	3888	.....	.....	.....	.....	16350	18
Monroe street	Grove	Woodward	300							
Mt. Airy street	Mississippi	L'Orient	.....	290						
Mt. Ida street	DeSoto	Otsego	.....	180						
Nash street	L'Orient	DeBow	.....	680						
Neill avenue	Seventh	Eighth	325							
Ninth street	Fort	Neill	980	4808						
Norris street	Canada	Temperance	761							
North street	DeSoto	Bedford	.....	851						

LOCATION, SIZE AND No. OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1885—Continued.

Street or Avenue.	From Street	To Street.	No. of feet and size of pipe.							
			4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36
Oak street	College	Ramsey	.....	3058						
Olive street	Sixth	Grove	574							
Olmsted street	Stillwater	DeBow	.....	623						
Oneida street	South of Seventh		.....	36						
Otsego street	Lafayette	Mt. Ida	.....	805						
Partridge street	DeSoto	Bradley	472							
Pearl street	Jackson	Grove	.....	.....	.....	.....	1175			
Pine street	Ninth	Twelfth	593							
Pleasant avenue	Sixth	Ramsey	.....	3130						
Prince street	Broadway	John	.....	777						
Ramsey street	Leech	Pleasant	.....	1342						
Richmond street	South of Seventh		.....	27						
Robert street	Second	Twelfth	.....	3470						
Rosabel street	Third	Seventh	.....	1401						
St. Clair street	East of Seventh		.....	40						
St. Paul street	Grove	Olmsted	960							
St. Peter street	Third	College	.....	2412						
Seventh street	Duluth R. R.	Stahlman's Brewery	350	1072	3640	9834				
Sherman street	Seventh	Bluff	.....	1051						
Sibley street	Levee	Eighth	630	1450						
Sixth street	Pleasant	Kittson	4776	1376						
Smith street	Seventh	Wilkin	.....	596						
Somerset street	Stillwater	DeBow	663							
Spruce street	Cooper	Wacouta	400							
Stillwater street	Grove to 150 feet North of Olmsted		910	220						
Temperance street	Eighth	Thirteenth	1555							
Tenth street	College	Locust	2167	3118						
Third street	Broadway	College	.....	6797						
Thirteenth street	Jackson	DeBow	310	1790						
Twelfth street	Cedar	Pine	280							

LOCATION, SIZE AND No. OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1885—(Concluded.)

Street or Avenue.	From Street.	To Street.	No. of feet and size of pipe.							
			4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36
Wabasha street	Third	Summit	.....	3362						
Wacouta street	Third	Spruce	630	1210						
Walnut street	Pleasant	Exchange	1438							
Washington street	Fifth	Chestnut	1646							
Waverly place	Lafayette	Stillwater	.....	340						
Western	South of Seventh		.....	27						
Westminster street	Waverly	N. P. R. R.	.....	1072						
William street	Mississippi	200 feet east of DeBow	.....	525						
Willius street	Fifth	Seventh	550							
Wilkin street	Sherman	Bluff	.....	1154						
Yankee street	East of Seventh		31							
Main line (old)	Farquier	Lake Phalen	.....	.....	.....	13564		7024		
			42138	97163	9875	27905	3512	8765	16350	18

4 inch	42138
6 inch	97163
12 inch	9875
16 inch	27905
20 inch	3512
24 inch	8765
30 inch	16350
36 inch	18

205726 feet or 38 5086|5280 miles.

LOCATION, SIZE, AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1885.

Street.	From Street.	To Street.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Arundel	Summit	Marshall	1230	....	....	....	....	....
Ashland	Western	Dale	....	2640	....	....	....	....
Aurora	Grant	Robert	....	635	....	....	....	....
Bates	Seventh	Plum	....	....	2975	....	....	....
Blair	west of Western.		....	20	....	....	....	....
Broadway	Thirteenth	N. line Fifteenth.	....	40	....	533	....	....
Canada	Fifteenth	Valley	....	280	....	....	....	....
Carrol	Rice	Kent	....	4885	....	....	....	....
Cedar	Summit	Central	....	680	....	....	....	....
Central	Martin	Grant	....	756	....	....	....	....
College	Third	Rice	....	1245	....	....	....	....
Como	Dale.	Western	....	....	....	....	3336	....
Dale.	Como	McCarron road	....	....	....	....	1447	9164
Dale.	Marshall	Grand	....	....	508	2640	....	....
Dayton	Summit	Fisk	....	2165	4675	....	....	....
De Bow	Grove	Thirteenth	....	....	....	387	....	....
Edmund	Rice	Marion	....	900	....	....	....	....
Farquier	Earl	Arcade	....	2572	....	....	....	....
Farrington	Summit	Carrol	....	2400	....	....	....	....
Fifteenth	Jackson	Broadway	....	....	....	1300	....	....
Fifth (east)	340 ft. W. of Maria	Maple	....	1419	....	....	....	....
Floral	Summit	Grand	480	....	....	....	....	....
Fourth	West of Maria		....	400	....	....	....	....
Fuller	West of Western		....	20	....	....	....	....
Grand	Lawton	Victoria	....	4215	....	....	....	....
Grant	Aurora	30 ft. n. Sherburne	....	1164	....	....	....	....
Grove	Seventh	De Bow	....	....	....	2618	....	....
Hoffman	Sixth	Seventh	....	487	....	....	....	....
Holly	Western	Dale	....	2646	....	....	....	....
Hudson	Maria	Maple	....	1065	....	....	....	....
Iglehart	Wabasha	MacKubin	....	5624	....	....	....	....
Jackson	N. of Fifteenth		....	28	....	....	....	....
Josette	Nelson	Carrol	....	820	....	....	....	....
Kent	Portland	Carrol	2201	....	....	....	....	....
Laurel	Nina	Dale	....	3720	....	....	....	....
Lawton	Summit	Grand	....	480	....	....	....	....
Lincoln	Oakland	Dale	....	855	....	....	....	....
Louis	Nelson	Carroll	....	830	....	....	....	....
McCarron (forc'd)	Pumping house	Dale	....	....	....	....	6124	....
MacKubin	Rondo	Summit	....	3688	....	....	....	....
Maria	Seventh	Hudson	....	2655	....	....	....	....
Marshall	Western	Arundel	....	2640	620	....	....	....
Martin	Rice	Central	....	665	....	....	....	....
Mendota	Seventh	Farquier	....	672	....	....	....	....
Nelson	Summit	Western	....	2422	....	....	....	....
Neurer	West of Western.		....	20	....	....	....	....
Nina	Summit	Selby	....	800	....	....	....	....
Oakland	Summit	Lincoln	....	829	....	....	....	....
Park avenue	Park ave. crossng	University	....	90	....	....	....	....
Park place	Park avenue		560	....	....	....	....	....
Portland	Western	Dale	....	2640	....	....	....	....
Rice	College	Como	....	543	45	2436	1154	....
Robert	Aurora	University	....	78	....	....	....	....
Rondo	Western	McKubin	....	1354	....	....	....	....
Ross	Seventh	Earl	....	500	....	....	....	....
St. Anthony	West of Western.		....	20	....	....	....	....

LOCATION, SIZE, AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DEC. 1, 1885.—*Concluded.*

Street.	From Street.	To Street.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
St. Peter	College	University	....	2676	....	....	....	....
Selby	Summit	Dale	....	4685	....	....	....	....
Seventh (east)	Grove	Earl	....	....	....	7124	....	....
Sherburne	350 ft. E. of Grant		400	....	....	....	....	....
Suction main	Terminal chambr	Pumping house	....	....	....	....	....	907
Summit	Cedar	Dale	....	4386	4195	....	....	....
Third (east)	Maria	Maple	....	1065	....	....	....	....
Third (west)	College	Summit	....	567	....	....	....	....
Thirteenth	De Bow	Broadway	....	....	....	778	....	....
Tilton	Rice	Wabasha	....	1278	....	....	....	....
Thomas	West of Western		....	20	....	....	....	....
Topping	West of Como		....	72	....	....	....	....
University	Jackson	Arundel	....	....	3260	2294	....	....
Valley	Fifteenth	No. 123 Valley	....	....	....	540	....	....
Virginia	Summit	Nelson	....	1827	....	....	....	....
Wabasha	Summit	25 ft. N. of Central	50	842	....	....	....	....
Western	Como	Summit	....	....	1775	6285	....	....
			4930	80034	18053	26985	12061	10071

4 inch pipe	4 930	feet.
6 " "	80 034	"
12 " "	18 053	"
16 " "	26,985	"
20 " "	12,061	"
24 " "	10,071	"

152,134 feet, or 28, 4294-5280 miles.

On High Service	152 134 feet.
On Low "	205,727 "

357,860 feet, or 67, 4100-5280 miles.

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
1	Woodward and Monroe streets	Low	Holly	4	36
2	Grove and Lafayette avenue	"	Mathews.	6	38
3	Westminster and Waverly street	"	do	6	36
4	Westminster and Herkimer avenue	"	do	6	37
5	Grove and St. Paul streets	"	do	6	39
6	Somerset and Stillwater streets	"	Holly	4	36
7	St. Paul and Somerset streets	"	Mathews.	4	36
8	DeBow and Thirteenth streets	"	do	6	36
9	Thirteenth and Mississippi streets	"	do	6	36
10	Grove and Mississippi streets	"	do	20	37
11	Pine and Eleventh streets	"	Holly	4	37
12	Canada and Pearl streets	"	Mathews.	6	35
13	Canada and Spruce streets	"	do	6	36
14	Pearl, in middle of block	"	do	20	34
15	Jackson and Pearl streets	"	do	6	30
16	Robert and Twelfth streets	"	do	6	28
17	Robert and Eleventh streets	"	do	6	26
18	Minnesota and Eleventh streets	"	Holly	6	26
19	Eleventh and Cedar streets	"	Mathews.	6	23
20	College and Wabash streets	"	do	6	26
21	Wabasha and Tenth streets	"	do	6	25
22	St. Peter and Tenth streets	"	do	6	23
23	St. Peter and College avenue	High	do	6	91
24	St. Peter and Summit avenue	"	do	6	80
25	Tenth and College avenue	Low	Holly	6	20
26	Tenth, between St. Peter and Fort streets	"	do	6	25
27	St. Peter and Exchange streets	"	Mathews.	6	27
28	Wabasha and Exchange streets	"	do	6	27
29	St. Peter and Ninth streets	"	do	6	29
30	Wabasha and Ninth streets	"	do	6	30
31	Jackson and Ninth streets	"	do	6	37
32	Cooper and Ninth streets	"	do	6	39
33	Canada and Ninth streets	"	do	6	40
34	Pine and Ninth streets	"	Holly	6	41
35	John and Ninth streets	"	do	6	41
36	Locust and Ninth streets	"	Mathews.	6	42
37	Neill and Eighth streets	"	Holly	4	45
38	Locust and Fifth streets	"	Mathews.	6	54
39	Olive and Eighth streets	"	do	4	43
40	Broadway and Eighth street	"	do	6	42
41	Wacouta and Eighth streets	"	Holly	4	41
42	Jackson and Eighth streets	"	Mathews.	6	40
43	Robert and Eighth streets	"	Holly	4	38
44	Burr and Partridge streets	"	do	6	33
45	Burr and Hopkins streets	"	do	6	29
46	Hopkins and DeSoto streets	"	Mathews.	6	30
47	Oak and Third streets	"	do	6	29
48	Pleasant avenue and Third street	"	do	6	25
49	College avenue and Third street	High	do	6	82
50	Exchange and Sherman streets	Low	Holly	4	35
51	Walnut and Exchange streets	"	do	4	36
52	Sherman and Seventh streets	"	Mathews.	6	34
53	Seventh and Walnut streets	"	Holly	12	37
54	Chestnut and Seventh streets	"	Mathews.	6	35
55	Fort and Third streets	"	do	6	32
56	Seven Corners	"	do	12	32
57	Seventh, back of Winslow House	"	do	12	31
58	Seventh and Fifth streets	"	do	12	30
59	Seventh and Franklin streets	"	do	12	30
60	Seventh and Sixth streets	"	do	12	31

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
61	Seventh and St. Peter streets	Low	Holly	12	31
62	Seventh and Wabasha streets	"	do	16	32
63	Cedar and Seventh streets	"	Mathews.	12	38
64	Seventh and Minnesota streets	"	do	16	40
65	Seventh and Robert streets	"	do	16	41
66	Jackson and Seventh streets	"	do	6	42
67	Seventh and Sibley streets	"	do	16	43
68	Seventh and Wacouta streets	"	do	16	42
69	Seventh and Rosabel streets	"	do	16	41
70	Broadway and Seventh street	"	do	16	41
71	Seventh and Pine streets	"	do	16	40
72	Seventh and Olive streets	"	do	16	41
73	Seventh and John streets	"	do	16	43
74	Seventh and Locust streets	"	do	16	44
75	Seventh and Neill streets	"	do	6	48
76	Willius and Sixth streets	"	do	4	48
77	Sixth and Pine streets	"	do	4	40
78	Jackson and Sixth streets	"	do	6	45
79	Robert and Sixth streets	"	do	6	44
80	Sixth and Minnesota streets	"	do	4	42
81	Sixth and Wabasha streets	"	do	6	30
82	Fifth and Washington streets	"	do	4	30
83	Fifth and Wabasha streets	"	do	6	28
84	Fifth and Cedar streets	"	do	4	41
85	Fifth and Minnesota streets	"	do	4	43
86	Robert and Fifth streets	"	do	6	44
87	Jackson and Fifth streets	"	do	6	46
88	Fourth and Sibley streets	"	do	6	52
89	Jackson and Fourth streets	"	do	6	48
90	Fourth and Robert streets	"	do	6	44
91	Fourth and Minnesota streets	"	do	6	42
92	Fourth and Wabasha streets	"	do	6	28
93	Washington and Fourth streets	"	do	4	32
94	Third and Exchange streets	"	do	6	32
95	Third, bet. Exchange and Franklin streets	"	do	6	32
96	Third and Franklin streets	"	do	6	32
97	Third and Washington streets	"	do	6	32
98	Third and Market streets	"	do	6	30
99	Washington and Eagle streets	"	do	4	62
100	Third and St. Peter streets	"	do	6	30
101	Wabasha and Third streets	"	do	6	28
102	Cedar and Third streets	"	do	12	30
103	Third and Minnesota streets	"	do	6	40
104	Third and Robert streets	"	do	6	45
105	Third and Jackson streets	"	do	6	52
106	Sibley and Third streets	"	do	6	60
107	Jackson street and Levee	"	do	6	66
108	Jackson and Tenth streets	"	Holly	6	32
109	Jackson and Eleventh streets	"	do	6	30
110	Sibley street and Levee	"	Mathews.	4	66
111	St. Peter and Fifth streets	"	do	6	30
112	Ninth and Robert streets	"	Holly	6	33
113	Tenth and Wacouta streets	"	Mathews.	4	38
114	Mississippi and Nash streets	"	do	6	32
115	Broadway and Twelfth street	"	do	6	37
116	Broadway and Tenth street	"	do	6	39
117	Elm and Franklin streets	"	do	4	32
118	Ninth and Cedar streets	"	do	6	32
119	Fourth and St. Peter streets	"	do	6	30
120	Sixth and Cedar streets	"	do	4	40

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
121	Fourth and Franklin streets	Low	Mathews.	6	30
122	Seventh and Leech streets	"	Holly	12	30
123	Grove and Stillwater streets	"	Mathews.	6	38
124	Grove and DeBow streets	"	do	6	39
125	Canada and Tenth streets	"	do	6	38
126	Ninth and Wacouta streets	"	do	6	40
127	Eighth and Temperance streets	"	do	4	41
128	Seventh and Willius streets	"	do	6	47
129	Seventh and Kittson streets	"	do	6	50
130	Ramsey and Leech streets	"	Holly	6	32
131	Collins and Lafayette avenue	"	Mathews.	6	18
132	Sibley and Fifth streets	"	do	6	45
133	Willius and Fifth streets	"	do	4	55
134	Eighth and Willius streets	"	Holly	4	44
135	Cooper and Tenth streets	"	do	4	38
136	Pleasant, bet. Third and Chestnut streets	"	do	6	27
137	Pleasant and Chestnut street	"	do	6	28
138	Pleasant and Walnut street	"	do	6	28
139	Oak, bet. Third and Chestnut streets	"	Mathews.	6	30
140	Fort 150 feet south of Tenth street	"	Holly	6	25
141	Fort and Ninth streets	"	do	6	27
142	Fort and Sixth streets	"	do	6	29
143	Fort and Fifth streets	"	do	6	31
144	Canada and Thirteenth streets	"	Mathews.	6	36
145	Thirteenth, bet. Canada and Temperance sts	"	do	6	36
146	Thirteenth at head of Temperance street	"	do	6	34
147	Mississippi and Mt. Airy streets	"	do	6	30
148	Mississippi and Glencoe streets	"	do	5	26
149	Mississippi 200 ft. south of Pennsylvania ave	"	do	6	24
150	Mississippi and Pennsylvania avenue	"	Holly	6	22
151	DeBow and Nash streets	"	do	6	36
152	Olmsted and DeBow streets	"	do	6	36
153	Olmsted and St. Paul streets	"	do	6	37
154	Olmstead and Stillwater streets	"	do	6	37
155	Ninth and Exchange streets	"	do	6	29
156	Ninth and Franklin streets	"	Mathews.	6	30
157	Wabasha and Summit avenue	"	do	6	17
158	Robert and Tenth streets	"	Holly	6	26
159	Canada and Norris streets	"	Mathews.	6	38
160	Norris and Cooper streets	"	Holly	4	38
161	Spruce and Wacouta streets	"	do	4	38
162	Spruce, at head of Cooper street	"	do	4	38
163	College ave., 300 feet west of St. Peter street	"	do	6	20
164	Fourth and Wacouta streets	"	Mathews.	6	56
165	Sibley and Fifth streets	"	do	6	48
166	Walnut and Oak streets	"	Holly	4	33
167	Fourth and Rosabel streets	"	Mathews.	6	58
168	South side of Third, on Broadway at R. R.	"	do	4	66
169	Third street and Broadway	"	do	6	65
170	Third and Rosabel streets	"	do	6	64
171	Third and Wacouta streets	"	do	6	63
172	Rice and Summit avenue	High	do	6	85
173	Fourth and Market streets	Low	do	6	30
174	Collins and Bedford streets	"	Holly	6	20
175	Burr and Collins streets	"	Mathews.	6	12
176	Tenth and Pine streets	"	Holly	6	40
177	Tenth and Olive streets	"	do	6	40
178	Tenth and John streets	"	do	6	40
179	Fourteenth and Canada streets	"	Mathews	6	33
180	Fourteenth, bet. Canada and Jackson sts	"	Holly	6	35

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
181	Partridge and Bradley streeets	Low	Holly	4	30
182	Fourth street and Broadway	"	Mathews.	6	61
183	Exchange and Sixth streets	"	Holly	4	30
184	North and Burr streets	"	do	6	16
185	North and DeSoto streets	"	do	6	18
186	Rosabel and Fifth streets	"	Mathews.	6	52
187	Rosabel and Sixth streets	"	Holly	6	46
188	Pleasant and Sherman street	"	do	6	30
189	Fourth and Jackson streets	"	Mathews.	6	48
190	John and Fourth streets	"	do	6	62
191	John and Fifth streets	"	do	6	53
192	John and Sixth streets	"	do	6	45
193	Bruno and Lafayette avenue	"	do	6	40
194	Canada and Fifteenth streets	"	do	6	27
195	Becker and Lafayette avenue	"	do	6	25
196	Pleasant and Sixth streets	"	do	6	22
197	Jackson and Thirteenth streets	"	do	6	30
198	Jackson and Fourteenth streets	"	do	6	27
199	Wilkin and McBoal streets	"	do	6	32
200	Wacouta and Third streets	"	do	4	63
201	McBoal and Leech streets	"	do	6	32
202	Wacouta and Sixth streets	"	do	6	45
203	Wacouta and Fifth streets	"	do	6	51
204	Fifth street and Broadway	"	do	4	54
205	Sixth street and Broadway	"	do	4	47
206	Tenth and Minnesota streets	"	do	6	26
207	Tenth and Cedar streets	"	do	6	26
208	Jackson and Fifteenth streets	"	do	6	20
209	Cedar and Eighth streets	"	do	12	36
210	Cedar and Exchange streets	"	do	12	28
211	Ninth and Minnesota streets	"	do	6	33
212	Wilkin and Smith streets	"	do	6	34
213	Fifth and Neill streets	"	do	6	56
214	Kittson & Fifth streets	"	do	6	57
215	Kittson and Sixth streets	"	do	6	53
216	Sixth and Neill streets	"	do	4	52
217	Otsego and Mt. Ida streets	"	do	6	8
218	Bradley and Woodward avenue	"	do	6	32
219	Bradley and North streets	"	do	6	27
220	Hopkins and Bradley streets	"	do	6	28
221	Oak and Chestnut streets	"	do	6	31
222	Bedford and Beaumont streets	"	do	6	15
223	Bedford and Minnehaha streets	"	do	6	12
224	Forbes and Pleasant avenue	"	do	6	31
225	Forbes and Ramsey streets	"	do	6	32
226	Forbes and Smith streets	"	do	6	31
227	Fourth and Cedar streets	"	do	6	35
228	Eighth and Minnesota streets	"	do	4	37
229	Beaumont and Bradley streets	"	do	6	12
230	Beaumont and DeSoto streets	"	do	6	12
231	Burr and Beaumont streets	"	do	6	12
232	Burr and Minnehaha streets	"	do	6	8
233	Burr and Farquier streets	"	do	6	10
234	Forbes and Seventh streets	"	do	6	30
235	Fourth and Pine streets	"	do	6	60
236	Fourth and Olive streets	"	do	6	62
237	Smith and Seventh streets	"	do	6	31
238	Fourth and Exchange streets	"	do	6	32
239	McBoal and Seventh streets	"	do	6	30

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
240	St. Peter and Sixth streets	"	do	6	30
241	Prince and Pine streets	"	do	6	64
242	Prince and Olive streets	"	do	6	65
243	Prince and John streets	"	do	6	65
244	Mt. Airy and L'Orient streets	"	do	6	20
245	Oak and Fifth streets	"	do	6	29
246	Oak and Sixth streets	"	do	6	26
247	Oak and College avenue	"	do	6	18
248	Douglas and Seventh streets	"	do	6	31
249	Goodrich and Seventh streets	"	do	6	31
250	Goodrich and Forbes streets	"	do	6	35
251	Goodrich and Leech streets	"	do	6	36
252	Acker and Mississippi streets	"	do	6	20
253	Genesee and Mississippi streets	"	do	6	23
254	Granite and Mississippi streets	"	do	6	25
255	Robert and Second streets	"	do	6	53
256	Pleasant and Ramsey street	"	do	6	29
257	Ramsey, at head of Douglas	"	do	6	32
258	Sherman and Franklin streets	"	do	6	33
259	Chestnut and Exchange streets	"	do	6	45
260	Exchange and Eagle streets	"	do	4	46
261	William and DeBow streets	"	do	6	16
262	DeBow, 200 feet south of Williams street	"	do	6	15
263	Topping and Como avenue	High.	do	6	72
264	Neurer and Western avenue	"	do	6	71
265	Blair and Western avenue	"	do	6	73
266	Thomas and Western avenue	"	do	6	72
267	University and Western avenue	"	do	12	73
268	Aurora and Western avenues	"	do	6	74
269	Fuller and Western avenue	"	do	6	70
270	Martin and Western avenue	"	do	6	67
271	St. Anthony and Western avenue	"	do	6	70
272	Rondo and Western avenue	"	do	6	73
273	Carrol and Western avenue	"	do	6	67
274	Iglehart and Western avenue	"	do	6	55
275	Marshall and Western avenues	"	do	6	46
276	Dayton and Western avenues	"	do	12	45
277	Western and Selby avenues	"	do	12	45
278	Western and Laurel avenues	"	do	12	46
279	Western and Ashland avenues	"	do	12	46
280	Western and Holly avenues	"	do	12	47
281	Western and Portland avenues	"	do	12	47
282	Summit and Portland avenues	"	do	12	47
283	Summit and Arundel street	"	do	12	45
284	Summit and Mackubin street	"	do	12	45
285	Summit and Kent street	"	do	12	49
286	Summit, 100 feet west of Oakland	"	do	12	50
287	Holly and Dale street	"	do	6	50
288	Holly and Kent street	"	do	6	48
289	Holly and Mackubin street	"	do	6	44
290	Holly and Arundel street	"	do	6	45
291	Ashland and Arundel	"	do	6	45
292	Ashland and Mackubin street	"	do	6	43
293	Ashland and Kent streets	"	do	6	45
294	Ashland and Dale street	"	do	6	50
295	Laurel and Dale street	"	do	6	47
296	Laurel and Kent street	"	do	6	43
297	Laurel and Mackubin street	"	do	6	42
298	Laurel and Arundel street	"	do	6	42

LIST OF HYDRANTS—(CONTINUED.)

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
299	Dayton and Dale street	"	do	12	42
300	Dayton and Kent street	"	do	12	42
301	Dayton and Mackubin streets	"	do	12	42
302	Dayton and Arundel street	"	do	12	44
303	Dayton and Virginia avenues	"	do	12	44
304	Dayton and Farrington avenues	"	do	12	44
305	Dayton, between Summit and Farrington	"	do	12	45
306	Summit and Dayton avenues	"	do	6	58
307	Summit and Selby avenues	"	do	6	50
308	Summit, head of Walnut street	"	do	6	51
309	Summit and Nina avenues	"	do	6	45
310	Summit and Farrington avenues	"	do	6	42
311	Summit and Virginia avenues	"	do	6	45
312	Farrington and Laurel avenues	"	do	6	46
313	Farrington and Selby avenues	"	do	6	44
314	Selby, at head of Nina avenue	"	do	6	44
315	Nina and Laurel avenues	"	do	6	45
316	Westminster, 100 ft. south of N. P. tunnel	Low.	do	6	33
317	Thirteenth street and Broadway	"	do	6	36
318	Temperance and Norris streets	"	do	4	35
319	Banfil and Seventh streets	"	do	4	31
320	Goodhue and Seventh streets	"	do	6	31
321	Yankee and Seventh streets	"	do	4	31
322	Western and Seventh street	"	do	6	31
323	St. Clair and Seventh streets	"	do	6	31
324	Richmond and Seventh streets	"	do	6	31
325	Colborne and Seventh streets	"	do	16	32
326	Chestnut and Franklin streets	"	do	6	52
327	Twelfth and Jackson streets	"	do	20	29
328	Twelfth and Minnesota streets	"	do	20	27
329	Twelfth and Cedar streets	"	do	20	24
330	Cedar and Summit avenue	"	do	6	22
331	Chestnut and Washington streets	"	do	6	60
332	Laurel and Virginia avenues	High.	do	6	45
333	Selby and Virginia avenues	"	do	6	45
334	Mackubin and Laurel avenue	"	do	6	42
335	Portland and Arundel street	"	do	6	44
336	Portland and Mackubin street	"	do	6	41
337	Portland and Kent street	"	do	6	45
338	Portland and Dale	"	do	6	45
339	Selby and Arundel street	"	do	6	45
340	Selby and Mackubin street	"	do	6	44
341	Selby and Kent street	"	do	6	44
342	Selby and Dale street	"	do	6	45
343	Carroll and Arundel streets	"	do	6	54
344	Carroll and Mackubin streets	"	do	6	51
345	Carroll and Kent streets	"	do	6	40
346	Kent and Iglehart streets	"	do	4	56
347	Marshall and Dale street	"	do	6	44
348	Marshall and Kent street	"	do	6	42
349	Marshall and Mackubin street	"	do	6	45
350	Rondo and Arundel streets	"	do	6	69
351	Rondo and Mackubin streets	"	do	6	60
352	Iglehart and Arundel street	"	do	6	55
353	Iglehart and Mackubin street	"	do	6	55
354	Marshall and Arundel street	"	do	6	45
355	McBoal and Douglas streets	Low.	do	6	30
356	Douglas and Prairie streets	"	do	6	30
357	Summit, at head of Third street	High.	do	12	60

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
358	Summit and Nelson avenues	"	do	12	62
359	College and Sixth street	"	do	6	80
360	Nelson and Virginia avenues	"	do	6	44
361	Nelson and Farrington avenues	"	do	6	44
362	Nelson and Louis street	"	do	6	54
363	Nelson and Josette street	"	do	6	59
364	Carroll and Virginia avenue	"	do	6	69
365	Carroll and Farrington avenue	"	do	6	70
366	Carroll and Louis streets	"	do	6	72
367	Carroll and Josette streets	"	do	6	79
368	Carroll and Ravoux streets	"	do	6	82
369	Park Place park	"	do	4	80
370	Iglehart and Virginia avenue	"	do	6	60
371	Iglehart and Farrington avenue	"	do	6	58
372	Iglehart and Louis streets	"	do	6	65
373	Douglas and Lisbon streets	Low.	do	6	32
374	Iglehart and St. Peter streets	High.	do	6	78
375	Iglehart and Wabasha streets	"	do	6	84
376	Iglehart and Josette streets	"	do	6	67
377	Iglehart and Ravoux streets	"	do	6	77
378	Iglehart and Rice streets	"	do	6	80
379	Rice and Rondo streets	"	do	16	87
380	Rice and St. Anthony avenue	"	do	16	75
381	Rice and Martin streets	"	do	16	72
382	Rice and Fuller streets	"	do	16	74
383	Rice and Aurora avenue	"	do	16	74
384	Rice and University avenue	"	do	20	73
385	Rice and Ellen streets	"	do	20	74
386	Rice and Charles streets	"	do	20	74
387	Rice and Edmund streets	"	do	20	75
388	Rice and Como avenue	"	do	12	74
389	Tilton and St. Peter streets	"	do	6	74
390	Oak and Ramsey streets	Low.	do	6	32
391	St. Peter and Martin streets	High.	do	6	73
392	Martin and Park streets	"	do	6	74
393	Central and Wabasha street	"	do	6	77
394	Tilton and Wabasha street	"	do	6	80
395	Central and Grant streets	"	do	6	72
396	Aurora and Grant street	"	do	6	64
397	Aurora and Robert street	"	do	6	76
398	Oak and Sherman streets	Low.	do	6	33
399	Bradley, 75 feet north of Seventh street	"	do	6	33
400	Broadway and Fourteenth street	"	do	4	35
401	Summit and Dale street	High.	do	12	45
402	Seventh and Brook street	Low.	do	6	48
403	Tenth and Cedar streets	"	do	20	26
404	Grand and Lawton street	High.	do	6	47
405	Grand and Floral street	"	do	6	44
406	Grand and Oakland avenues	"	do	6	56
407	Grand and Dale street	"	do	6	51
408	Grand and St. Albans street	"	do	6	50
409	Valley street and Broadway	"	do	16	100
410	Grand and Grotto street	"	do	6	46
411	Grand and Avon street	"	do	6	44
412	Grand and Victoria street	"	do	6	44
413	University and Marion street	"	do	12	78
414	University and Gaultier street	"	do	12	76
415	University and Farrington avenues	"	do	12	76
416	University and Virginia avenues	"	do	12	76

LIST OF HYDRANTS—(CONTINUED.)

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
417	Marshall and St. Albans street	"	do	12	48
418	University and Arundel street	"	do	12	73
419	Dayton and St. Albans street	"	do	6	46
420	Dayton and Grotto street	"	do	6	45
421	Dayton and Milton street	"	do	6	44
422	Dayton and Fisk street	"	do	6	46
423	St. Peter and Aurora avenue	"	do	6	70
424	St. Peter and University avenue	"	do	6	68
425	Park and University avenues	"	do	6	67
426	Grant and University avenue	"	do	6	58
427	Grant and Sherburne avenue	"	do	6	50
428	Sherburne and 350 feet east of Grant street.	"	do	4	52
429	Hoffman and Seventh street	"	do	6	105
430	Fourth 400 feet west of Maria avenue	"	do	6	95
431	Maria and Seventh street	"	do	6	93
432	Maria and Sixth street	"	do	6	92
433	Maria and Fifth street	"	do	6	93
434	Maria and Fourth street	"	do	6	95
435	Maria and Third street	"	do	6	97
436	Maria and Conway street	"	do	6	98
437	Maria and Ravine street	"	do	6	99
438	Maria and Euclid street	"	do	6	100
439	Maria and Hudson avenues	"	do	6	96
440	Bates and Plum street	"	do	12	82
441	Bates and Hudson avenues	"	do	12	81
442	Bates and Euclid street	"	do	12	79
443	Bates and Ravine street	"	do	12	77
444	Bates and Conway street	"	do	12	76
445	Bates and Third street	"	do	12	80
446	Bates and Fourth street	"	do	12	75
447	Bates and Fifth street	"	do	12	78
448	Bates and Sixth street	"	do	12	72
449	Bates and Seventh street	"	do	12	78
450	Fifth and Maple avenue	"	do	6	65
451	Third and Maple avenue	"	do	6	68
452	Hudson and Maple avenue	"	do	6	68
453	Valley at head of Canada	"	do	16	90
454	Seventh and Maple avenue	"	do	16	62
455	Seventh and Hope streets	"	do	16	59
456	Seventh and Margaret streets	"	do	16	60
457	Seventh and Beech streets	"	do	16	69
458	Goodhue and Dousman streets	Low.	do	6	36
459	Goodhue and Cliff streets	"	do	6	35
460	Grace and Colborne streets	"	do	6	32
461	Colborne and Jefferson streets	"	do	6	33
462	Duke and Seventh streets	"	do	6	32
463	Seventh and Minnehaha streets	High.	do	16	73
464	Seventh and Reaney streets	"	do	16	70
465	Seventh and Forest streets	"	do	16	69
466	Nash and L'Orient streets	Low.	do	6	35
467	Jessie and Farquier streets	"	do	6	12
468	Seventh and Jefferson streets	"	do	16	33
469	Seventh and Farquier streets	High.	do	16	72
470	Seventh and Cypress streets	"	do	16	79
471	Seventh and Ross streets	"	do	16	80
472	Seventh and Earl	"	do	16	83
473	Ross and Earl streets	"	do	6	80
474	Edmund and Marion streets	"	do	6	76
475	Farquier and Cypress streets	"	do	6	76

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant.	Size of pipe.	Pressure at Hydrant.
476	Farquier and Earl streets	"	do	6	15
477	Farquier and Payne streets	Low.	do	12	6
478	Farquier and Edgerton streets	"	do	12	8
479	Farquier and Bradley streets	"	do	12	14
480	DeSoto and Farquier streets	"	do	12	15
481	DeSoto and Minnehaha streets	"	do	12	5
482	Fifth, 340 feet west of Maria	Higa.	do	12	92
483	Farquier and Forest streets	"	do	6	72
484	Farquier and Mendota streets	"	do	6	81
485	Farquier and Arcade streets	"	do	6	80
486	Lincoln, 375 feet west of Oakland avenue	"	do	6	55
487	Lincoln and Dale street	"	do	9	50
488	Hoffman and Sixth streets	"	do	6	104
489	Mendota and Reaney streets	"	do	6	76
490	Ninth street and Broadway	Low.	do	6	41
491	Oneida and Seventh streets	"	do	6	30

54 Holly hydrants.
437 Mathews hydrants.
40 on low service, placed this season.
136 on high, of which 44 were on Dayton Bluff, and 92 on St. Anthony Hill.
4 were changed from low to high service.
298 total on low service.
193 total on high.
491 total number of fire hydrants.

LIST OF STREET SPRINKLING HYDRANTS.

No.	Location.	Measurement of valve from Hydrant.	Name of Hydrant.	Size of pipe.
1	Sixth and Jackson streets	6½ feet.	Holly	2 inch
2	Fifth and Wacouta streets	7½ do	do	do
3	Wacouta and Third streets	6 do	do	do
4	Fort and Third streets at seven corners	6 do	do	do
5	Third and Jackson streets	5 do	do	do
6	Minnesota and Third streets	5½ do	do	do
7	Fifth and Robert streets	6 do	do	do
8	Robert and Seventh streets	6 do	do	do
9	Wacouta and Seventh streets	7½ do	do	do
10	Ninth and Cedar streets	8 do	do	do
11	Eighth street and Broadway	5 do	do	do
12	John and Seventh streets	7 do	do	do
13	Walnut and Seventh streets	8 do	do	do
14	Kittson and Seventh streets	10 do	do	do
15	Ninth and St. Peter streets	5¼ do	do	do
16	Pine and Tenth streets	8½ do	do	do
17	DeBow and Grove streets	8 do	do	do
18	Waverly place and Westminster street	3½ do	do	do
19	Leech and Seventh streets	In tunnel.	do	do
20	Broadway and Fourth street	7 feet.	do	do
21	Cedar and Seventh streets	8 do	do	do
22	College and Wabasha street	8 do	do	do
23	College and Tenth street	4 do	do	do
24	Pleasant and Third street	7 do	do	do
25	Fourth and St. Peter streets	In tunnel.	do	do
26	Franklin and Fourth streets	In tunnel.	do	do
27	Goodrich and Seventh street	16 feet.	do	do
28	Eleventh and Robert streets	5 do	do	do
29	Mt. Airy and Mississippi streets	8½ do	do	do
30	Burr and Collins streets	11 do	do	do
31	Bradley and Woodward avenue	7 do	do	do
32	Martin and Western avenue	10½ do	do	do
33	Western and Dayton avenues	4 do	do	do
34	Portland and Western avenues	34 do	do	do
35	Laurel and Farrington avenues	13½ do	do	do
36	St. Clair and Seventh streets	10½ do	do	do
37	Ramsey and Pleasant avenue	7½ do	do	do
38	Mackubin and Selby avenue	33½ do	do	do
39	Summit and Nelson avenues	10 do	do	do
40	Mackubin and Summit avenue	14 do	do	do
41	Dale and Marshall avenue	8 do	do	do
42	Dale and Ashland avenue	28 do	do	do
43	Dale and Grand avenue	8 do	do	do
44	Marshall and Western avenues	10 do	do	do
45	Rondo and Rice streets	10 do	do	do
46	Central and Wabasha street	7½ do	do	do
47	University and Arundel street	10 do	do	do
48	University and Rice street	9½ do	do	do
49	Bates and Seventh street	9 do	do	do
50	Hudson and Maria avenues	10 do	do	do
51	Mendota and Farquier streets	8 do	do	do
52	Oneida and Seventh streets	8 do	do	do

LOCATION OF VALVES.

(LOW SERVICE.)

STREET.	LOCATION.	3 In.	4 In.	6 In.	12 In.	16 In.	20 In.	24 In.	30 In.	36 In.
Acker	west line of Mississippi street			1						
Banfil	east line of Seventh street		1							
Beaumont	east line of DeSota street			1						
Beaumont	west line of Bedford street			1						
Becker	south line of Lafayette avenue			1						
Bedford	north line of North street			1						
Bedford	south line of Minnehaha			1						
Bradley	north line of Partridge street			1						
Broadway	blow off at Ninth street			1						
Broadway	north line of Seventh street			2				1		
Broadway	south line of Grove street			2				1		
Broadway	north line of Third street	1				1				
Broadway	south line of Seventh street					1				
Broadway	north line of Thirteenth street		1							
Bruno	South line of Lafayette avenue			1						
Burr	south line of Farquier street			1						
Burr	south line of North street			1						
Burr	south line of Hopkins street			1						
Burr	north line of Collins street			1						
Burr	north line of Beaumont street			1						
Canada	north line of Ninth street			1						
Canada	south line of Pearl street			1						
Canada	north line of Pearl street			1						
Cedar	north line of Twelfth street			1						
Cedar	south line of Twelfth street						1			
Cedar	blow off at Sixth street	1								
Cedar	north line of Third street				1					
Cedar	south line of Seventh street				1					
Cedar	north line of Seventh street				1					
Cedar	blow off at Eighth street	1								
Cedar	south line of Tenth street				1					
Chestnut	west line of Franklin street			1						
Chestnut	east line of Seventh street			1						
College	west line of St. Peter street			1						
College	east line of Wabasha street			1						
College	west line of Wabasha street			1						
College	west line of Tenth Street			1						
College	west line of Cedar street			1						
Collins	east line of Lafayette avenue			1						
Collins	west line of Bedford street			1						
Cooper	north line of Ninth Street		1							
Cooper	north line of Tenth street		1							
Cooper	north line of Spruce street		1							
DeBow	south line of Olmsted street			1						
DeBow	north line Grove street			1						
DeBow	south line of William street			1						
DeBow	north line of Olmsted street			1						
DeSoto	south line of Collins street			1						
Douglas	south line of Seventh street			1						
Douglas	north line of Seventh street			1						
Douglas	south line of Lisbon street			1						
Duke	south line of Seventh street			1						
Eighth	west line of Locust street		1							
Eighth	east line of Locust street		1							
Eighth	east line of Broadway		2							
Eighth	west line of Broadway		2							
Eighth	west line of Jackson street		1							
Eighth	east line of Cedar street		1							
Eighth	west line of Cooper street		1							
Eighth	west line of Cedar street		1							
Eighth	west line of Kittson street, blow off	1								
Eleventh	east line of Broadway		2							
Eleventh	west line of Jackson street			1						
Eleventh	west line of Robert street			1						
Eleventh	east line of Cedar street			1						
Elm	east line of Exchange street		1							
Exchange	south line Eagle street		1							

LOCATION OF VALVES—Continued.

(LOW SERVICE.)

STREET.	LOCATION.	3 In.	4 In.	6 In.	12 In.	16 In.	20 In.	24 In.	30 In.	36 In.
Exchange	south line of Chestnut street		1							
Exchange	north line of Sherman street		1							
Exchange	north line of Seventh street		1							
Exchange	west line of St. Peter street		1							
Exchange	south line of Ninth street		1							
Exchange	east line of Wilkin street		1							
Exchange	south line of Third street		1							
Exchange	north line of Third street		1							
Farquier	east line of DeSoto street				1					
Fifth	east line of Seventh street	1								
Fifth	east line of Jackson street		1							
Fifth	west line of Jackson street		1							
Fifth	east line of Minnesota street		1							
Fifth	east line of Oak street		1							
Fifth	east line of Cedar street		1							
Fifth	east line of Wabasha street		1							
Fifth	west line of Wabasha street			1						
Fifth	west line of St. Peter street		1							
Fifth	west line of Washington street		1							
Fifth	west line of Cedar street		1							
Fifth	east line of Sibley street		1							
Fifth	west line of Broadway		1							
Fifth	east line John street			1						
Fifth	west line of Willius street			1						
Fifth	west line of Neill street			1						
Fifth	west line of Rosabel street		1							
Fifth	east line of Fort street		1							
Forbes	north line of Smith street			1						
Forbes	north line of Ramsey street			1						
Forbes	north line of Seventh street			1						
Forbes	south line of Seventh street			1						
Fourteenth	east line of Jackson street			1						
Fourteenth	west line of Canada street			1						
Fourth	east line of Franklin street			1						
Fourth	west line of Broadway			1						
Fourth	west line of Rosabel street			1						
Fourth	west line of Wacouta street			1						
Fourth	east line of Jackson street			1						
Fourth	west line of Jackson street			1						
Fourth	west line of Wabasha street			1						
Fourth	west line of Market street			1						
Fourth	east line of Cedar street			1						
Fourth	east line of Minnesota street			1						
Fourth	west line of Cedar street			1						
Fourth	east line of Broadway			1						
Fourth	east line of Olive street			1						
Fort	north line of Sixth street			1						
Fort	south line of Tenth street			1						
Fort	north line of Fourth street			1						
Franklin	north line Seventh street		1							
Franklin	north line of Fourth street		1							
Genesee	west line of Mississippi street			1						
Goodhue	east line of Seventh street			1						
Goodrich	east line of Seventh street			1						
Grace	east line of Seventh street			1						
Granite	west line of Mississippi street			1						
Grove	blow off Mississippi street		1							
Grove	on hydrant west line of Miss. st.		1							
Grove	west line of Lafayette ave			1						
Grove	w. line Miss. 1 on cent. line Miss.						2			
Hopkins	east line of DeSota street			1						
Hopkins	west line of Bradley street			1						
Jackson	blow off at Levee	1								
Jackson	north line of Levee		1							
Jackson	south line of Fourth street			1						
Jackson	north line of Seventh street			1						
Jackson	south line of Seventh street			1						

LOCATION OF VALVES—Continued.

(LOW SERVICE.)

STREET.	LOCATION.	3 In.	4 In.	6 In.	12 In	16 In.	20 In.	24 In	30 In.	36 In.
Jackson	north line of Eighth street			1						
Jackson	north line of Ninth street			1						
Jackson	south line of Twelfth street			1						
Jackson	north line of Pearl street			1						
Jackson	south line of Fourteenth street			1						
Jessie	south line of Farquier street			1						
John	south line of Tenth street		1							
John	south line of Seventh street			1						
John	north line of Fourth street			1						
John	north line of Seventh street		1							
John	north line of Fifth street			1						
John	south line of Grove street		1							
Kittson	south line of Seventh street			1						
Kittson	north line of Fifth street			1						
Lafayette	south line of Collins					1				
Lafayette	blow off at N. P. right-of-way		1							
Lafayette	at end of retaining wall		1							
Lafayette	blow off at gate	1								
Lafayette	at end of retaining wall					1				
Leech	north line of Seventh street			1						
Leech	north line of Goodrich street			1						
Leech	north line of McBoal street			1						
Locust	north line of Seventh street					1				
L'Orient	north line of Thirteenth street			1						
McBoal	east line of Seventh street			1						
McBoal	east line of Forbes street			1						
McBoal	west line of Wilkin street			1						
McBoal	west line of Seventh street			1						
Market	north line of Third street		1							
Minnesota	north line of Third street		1							
Minnesota	south line of Fifth street		1							
Minnesota	south line of Seventh street		1							
Minnesota	north line of Seventh street		1							
Minnesota	south line of Tenth		1							
Minnesota	south line of Eleventh street		1							
Minnesota	south line of Twelfth street		1							
Mississippi	north line of Grove street			2					1	
Mississippi	north line of Nash street			1						
Mississippi	north line of Glencoe street			1						
Mississippi	blow off at north line of Grove st.			1						
Mississippi	south line of Cayuga street			2						
Mississippi	south line of Minnehaha street			2						
Mississippi	blow off n. line St. P. M. & M. R.R			1						
Mississippi	north line St. P. M. & M. R'w			2						
Mississippi	south line of Acker street								1	
Mississippi	blow off at Trout Brook			1						
Mississippi	blow off at Cook street			1						
Mississippi	west line of Cook street								1	
Mississippi	blow off at creek n. of Maryland a			1						
Mississippi	blow off 200 ft. s. e. Como & Phal. a			1						
Mississippi	south line Como and Phalen av								1	
Mississippi	blow off s. line Como& Phalen av			1						
Mississippi	blow off 2,000 ft. n. Com. & Phal. a			1						
Mississippi	at reservoir and pumping station								1	
Mississippi	blow off last mentioned 30 in. gate			1						
Mississippi	at reservoir									1
Mt. Airy	west line of Mississippi street			1						
Mt. Ida	west line of DeSoto street			1						
Nash	west line of Mississippi street			2						
Nash	east line of Mississipi street			2						
Neill	north line of Seventh street		1							
Ninth	east line of Locust street		1							
Ninth	west line of Locust street			1						
Ninth	east line of Broadway			2						
Ninth	west line of Broadway			2						
Ninth	west line of Jackson street			1						
Ninth	west line of St. Peter street			1						

LOCATION OF VALVES—Continued.

(LOW SERVICE.)

STREET.	LOCATION.	3 In.	4 In.	6 In.	12 In.	16 In	20 In.	24 In.	30 In.	36 In.
Ninth	east line of Fort street			1						
Ninth	east line of Wabasha street		1							
Ninth	east line of Cedar street			1						
Ninth	west line of Cedar street			1						
Ninth	east line of Minnesota street			1						
Ninth	west line of Cooper street			1						
Norris	east line of Temperance street		1							
Norris	west line of Canada street		1							
North	west line of Bradley street			1						
Oak	north line of Sixth street			1						
Oak	north line of Third street			1						
Oak	south line of Third street			1						
Oak	north line of Walnut street			1						
Oak	north line of Ramsey street			1						
Oak	north line of Sherman street			1						
Olive	south line of Seventh street		1							
Olive	south line of Grove street		1							
Otsego	north line of Lafayette avenue			1						
Oneida	south line of Seventh street			1						
Partridge	west line of Bradley street		1							
Pearl	east line of Jackson street						1			
Pearl	on hydrant in middle of block		1							
Pennsylvania	east line of Mississippi street			1						
Pennsylvania	west line of Mississippi street			1						
Pine	north line of Ninth street		1							
Pleasant	west line of Forbes street			1						
Pleasant	north line of Walnut street			1						
Pleasant	south line of Third street			1						
Pleasant	north line of Third street			1						
Prince	east line of Broadway			1						
Ramsey	south line of Pleasant avenue			1						
Ramsey	north line of Forbes street			1						
Richmond	south line of Seventh street			1						
Robert	south line of Third street			1						
Robert	north line of Third street			1						
Robert	north line of Fourth street			1						
Robert	north line of Fifth street			1						
Robert	north line of Seventh street			1						
Robert	south line of Seventh street			1						
Robert	north line of Eighth street			1						
Robert	south line of Eleventh street			1						
Robert	north line of Ninth street			1						
Robert	south line of Twelfth street			1						
Rosabel	south line of Fourth street			1						
Rosabel	north line of Fifth street			1						
Rosabel	south line of Seventh street			1						
St. Clair	east line of Seventh street			1						
St. Paul	south line of Olmsted street		1							
St. Paul	north line of Grove street		1							
St. Peter	south line of Tenth street			1						
St. Peter	north line of Seventh street			1						
St. Peter	north line of Fourth street			1						
St. Peter	south line of Sixth street			1						
St. Peter	north line of Third street			1						
St. Peter	n. line Col'ge a. dv'g gate h & 1 ser			1						
Seventh	east line of Locust street			1						
Seventh	west line of Jackson street					1				
Seventh	blow off at Robert street	1								
Seventh	east line of St Peter street				1					
Seventh	east line of Third street				1					
Seventh	east line of Broadway					1				
Seventh	west line of Broadway					1				
Seventh	west line of Kittson street			1						
Seventh	blow off at Walnut street	1								
Seventh	south line of Third street				1					
Seventh	north line of Ramsey street				1					
Seventh	south line of Leech street				1					

LOCATION OF VALVES—Continued.

(LOW SERVICE.)

STREETS.	LOCATION.	3 in.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Seventh	south line of McBoal street					1				
Seventh	north line of Yankee street					1				
Seventh	north line of Milwaukee R. R.					1				
Seventh	east line of Colborne street					1				
Seventh	on hyd at Seventh and Colborne		1							
Seventh	on hyd., Seventh and Jefferson st		1							
Sherman	east line of Exchange street			1						
Sherman	east line of Wilkin street			1						
Sherman	east line of Seventh street			1						
Sibley	south line of Third street		1							
Sibley	north line of Third street			1						
Sibley	south line of Fifth street			1						
Sibley	south line of Seventh street			1						
Sibley	north line of Seventh street		1							
Sixth	west line of Willius street		1							
Sixth	east line of John street		1							
Sixth	west line of Cedar street		1							
Sixth	east line of Jackson street		1							
Sixth	west line of Neill street		1							
Sixth	east line of Sibley street		1							
Sixth	west line of Rosabel street		1							
Sixth	east line of Broadway		1							
Sixth	west line of Kittson street		1							
Sixth	west line of Broadway		1							
Sixth	east line of Robert street		1							
Sixth	west line of Oak street			1						
Sixth	west line of Fort street			1						
Sixth	east line of Exchange street			1						
Sixth	east line of Olive street		1							
Sixth	west line of Jackson street		1							
Sixth	east line of Minnesota street		1							
Sixth	east line of Cedar street		1							
Sixth	east line of Fort street			1						
Sixth	east line of Wabasha street		1							
Smith	east line of Seventh street			1						
Smith	west line of Wilkin street			1						
Somerset	east line of De Bow street		1							
Somerset	west line of Stillwater street		1							
Stillwater	north line of Grove street		1							
Stillwater	north line of Olmsted street			1						
Stillwater	south line of Olmsted street			1						
Temperance	north line of Eighth street		1							
Temperance	north line of Pearl street		1							
Temperance	north line of Tenth street		1							
Temperance	south line of Pearl street		1							
Tenth	south line of College avenue			1						
Tenth	on hydrant at Cedar street		1							
Tenth	west line of St. Peter street			1						
Tenth	east line of St. Peter street			1						
Tenth	east line of Broadway			2						
Tenth	west line of Canada street		1							
Tenth	east line of Jackson street		1							
Tenth	east line of Wabasha street		1							
Tenth	west line of Locust street			1						
Tenth	east line of Cedar street			1						
Tenth	west line of Robert street			1						
Tenth	west line of Jackson street		1							
Tenth	west line of Broadway		2							
Third	between Cedar and Minnesota			1						
Third	west line of Jackson street			1						
Third	east line of Jackson street			1						
Third	east line of Wacouta street			1						
Third	west line of Broadway			1						
Third	south line of Seventh street			1						
Third	north line of Fourth street			1						
Third	east line of St. Peter street			1						
Third	west line of Washington street			1						
Thirteenth	west line of De Bow street		1							

LOCATION OF VALVES—Concluded.

(LOW SERVICE.)

STREET.	LOCATION.	3 in.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	26 in.	30 in.
Thirteenth	west line of Canada street			1						
Thirteenth	east line of Jackson street			1						
Thirteenth	east line of Mississippi street			2						
Thirteenth	west line of Mississippi street			2						
Thirteenth	east line of Canada street			1						
Twelfth	east line of Broadway		2							
Twelfth	on hydrant at Cedar street		1							
Twelfth	on hydrant at Minnesota street		1							
Twelfth	on hydrant at Jackson street		1							
Twelfth	blow off west line of Jackson st		1							
Wabasha	north line of College avenue			1						
Wabasha	north line of Ninth street			1						
Wabasha	north line of Seventh street			1						
Wabasha	north line of Third street			1						
Wabasha	south line of Fifth street			1						
Wacouta	south line of Seventh street		1							
Wacouta	north line of Tenth street		1							
Wacouta	north line of Third street			1						
Wacouta	south line of Fifth street			1						
Wacouta	south line of Sixth street			1						
Walnut	east line of Seventh street		1							
Walnut	east line of Pleasant avenue		1							
Walnut	west line of Seventh street		1							
Washington	north line of Chestnut street		1							
Washington	south line of Third street		1							
Washington	north line of Third street		1							
Washington	north line of Fourth street		1							
Waverly place	West line of Lafayette avenue			1						
Waverly place	east line of Stillwater street			1						
Western avenue	south line of Seventh street			1						
William	east line of Mississippi street			2						
Willius	south line of Seventh street		1							
Willius	north line of Fifth street		1							
Wilkin	north line of Smith street			1						
Yankee	east line of Seventh street		1							
Main line (old)	gate house Phalen lake						1	1		
Main line (old)	at plow works					1	1	1		
Main line (old)	on Seventh at Phalen creek					1				
Main line (old)	north of Plow works at railroad			2						
Main line (old)	at Harvester works					1				
Main line (old)	at Payne and Ross streeets					1				
Main line (old)	bl'w off, Seventh and Phalen cr'k	1								
Main line (old)	bl'w off bet. Forest and Cypress	1								
Main line (old)	blow off near Arcade	1								
		12	123	231	10	16	6	4	5	1

Number of Valves laid this year, 56.
Total number of Valves on Low Service, 408.

LOCATION AND SIZE OF VALVES,

HIGH SERVICE.

STREET.	LOCATION.	3 in.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Arundel	north line of Summit avenue		1					
Arundel	south line of Selby avenue		1					
Arundel	north line of Dayton avenue		1					
Ashland	west line of Western avenue			1				
Ashland	east line of Mackubin street			1				
Ashland	east line of Dale street			1				
Aurora	west line of Western avenue			1				
Bates	south line of Seventh street				1			
Bates	north line of Conway street				1			
Blair	west line of Western avenue			1				
Broadway	north line of Fifteenth street			1				
Canada	north line of Fifteenth street			1				
Canada	south line of Valley street			1				
Carroll	west line of Western avenue			1				
Carroll	east line of Mackubin street			1				
Carroll	east line of Western avenue			1				
Carroll	west line of Farrington avenue			1				
Carroll	east line of Louis street			1				
Carroll	west line of Rice street			1				
Cedar	south line of Central avenue			1				
Central	west line of Wabasha street			1				
Como	east line of Dale street						1	
Como	south line of Topping street						1	
Como	blow off at culvert			1				
Como	south line of Western avenue						1	
Dale	north line of Como avenue							1
Dale	blow off, north line of Como avenue			1				
Dale	blow off at Nigger Lake			1				
Dale	north line of Phalen & Como avenue							1
Dale	blow off at Cemetery			1				
Dale	blow off at junction of 20 and 24 in. pipe			1				
Dale	for Reservoir							1
Dale	north of 24 inch main for Reservoir						1	
Dale	blow off south of McCarron road			1				
Dale	south line of McCarron road						1	
Dale	south line of Marshall avenue					1		
Dale	blow off at Ashland avenue	1						
Dale	north line of Summit avenue					1		
Dale	south line of Summit avenue				1			
Dayton	west line of Summit avenue				1			
Dayton	east line of Western avenue				1			
Dayton	west line of Western avenue				1			
Dayton	east line of Makubin street				1			
Dayton	east line of Dale street				1			
Dayton	west line of Dale street			1				
Dayton	east line of Grotto street			1				
Dayton	west line of Milton street			1				
DeBow	north line of Grove street					1		
Edmund	west line of Rice street			1				
Farquier	east line of Seventh street			1				
Farquier	west line of Seventh street			1				
Farmington	north line of Summit avenue			1				
Farrington	west line of Laurel avenue			1				
Farrington	south line of Dayton avenue			1				
Farrington	north line of Dayton avenue			1				
Farrington	north line of Nelson avenue			1				
Farrington	south line of Carroll street			1				
Fifteenth	south line of Valley street					1		
Fifth (east)	west line of Bates avenue			1				
Fifth (east)	east line of Bates avenue			1				
Floral	south line of Summit avenue		1					
Fuller	west line of Western avenue		1					
Grand	east line of Oakland avenue			1				
Grand	east line of Dale street			1				
Grand	west line of Dale street			1				
Grand	east line of Grotto			1				
Grant	north line of Central avenue			1				
Grant	south line of University avenue			1				

LOCATION AND SIZE OF VALVES—Continued.

(HIGH SERVICE.)

STREET.	LOCATION.	3 in.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Grant	north line of University avenue			1				
Grove	blow off at DeHow street	1						
Grove	east line of Monroe street					1		
Grove	west line of Brook street	1						
Hoffman	south line Seventh street			1				
Holly	west line of Western avenue			1				
Holly	east line of Dale street			1				
Holly	east line of Mackubin street			1				
Hudson	west line of Bates avenue			1				
Hudson	east line Bates avenue			1				
Iglehart	west line of Western avenue			1				
Iglehart	east line of Mackubin street			1				
Iglehart	east line of Western avenue			1				
Iglehart	west line of Farrington avenue			1				
Iglehart	west line of Louis street			1				
Iglehart	west line of Josette street			1				
Iglehart	west line of Rice street			1				
Iglehart	east line of Rice street			1				
Iglehart	west line of Wabasha street			1				
Jackson	north line of Fifteenth street			1				
Josette	north line of Nelson avenue			1				
Josette	south line of Carroll street			1				
Kent	south line of Holly avenue		1					
Kent	south line of Ashland avenue		1					
Kent	south line of Laurel avenue		1					
Kent	south line of Selby avenue		1					
Kent	north line of Iglehart street		1					
Kent	north line of Marshall avenue		1					
Laurel	west line of Western avenue			1				
Laurel	east line of Mackubin street			1				
Laurel	east line of Dale street			1				
Laurel	east line of Western avenue			1				
Laurel	east line of Virginia avenue			1				
Laurel	west line of Nina avenue			1				
Lawton	south line of Summit avenue			1				
Lincoln	west line of Oakland avenue			1				
Louis	north line of Nelson avenue			1				
Louis	south line of Carroll street			1				
McCarron road	(force main) south of pumping station						1	
McCarron road	blow off in Trout Brook			1				
McCarron road	south of McCarron Lake					1		
McCarron road	blow off southwest of McCarron Lake			1				
McCarron road	west line of Dale street					1		
Mackubin	north line of Summit avenue			1				
Mackubin	south line of Holly avenue			1				
Mackubin	south line of Ashland avenue			1				
Mackubin	south line of Laurel avenue			1				
Mackubin	south line of Selby avenue			1				
Mackubin	south line of Dayton avenue			1				
Mackubin	north line of Dayton avenue			1				
Mackubin	north line of Marshall avenue			1				
Mackubin	north line of Iglehart street			1				
Mackubin	north line of Carroll street			1				
Maria	north line of Seventh street			1				
Maria	south line of Seventh street			1				
Maria	north line of Fifth street			1				
Maria	south line of Fourth street			1				
Maria	north line of Conway street			1				
Maria	south line of Ravine street			1				
Maria	north line of Hudson street			1				
Marshall	west line of Western avenue			1				
Marshall	east line of Mackubin street			1				
Marshall	east line of Dale street			1				
Marshall	west line of Dale street				1			
Martin	west line of Western avenue			1				
Martin	east line of Rice street			1				
Mendota	north line of Seventh street			1				
Mendota	south line of Farquier street			1				

LOCATION OF VALVES—Continued.

(HIGH SERVICE.)

STREET.	LOCATION.	3 in.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Nelson	east line of Western avenue			1				
Nelson	east line of Farrington avenue			1				
Nelson	west line of Summit avenue			1				
Neurer	west line of Western avenue			1				
Nina	north line of Summit avenue			1				
Oakland	south line of Summit avenue			1				
Park avenue	north line of University avenue			1				
Park avenue	South line of University avenue			1				
Park Place	south line of Summit avenue		1					
Portland	west line of Western avenue			1				
Portland	east line of Mackubin street			1				
Portland	east line of Dale street			1				
Rice	south line of Summit avenue			1				
Rice	north line of Summit avenue					1		
Rice	blow off at Summit avenue	1						
Rice	north line of St. Anthony avenue					1		
Rice	south line of University avenue					1		
Rice	north line of University avenue						1	
Rice	On hydrant at Rice and University ave		1					
Rice	On hydrant at Rice and Ellen street		1					
Rice	On hydrant at Rice and Charles street		1					
Rice	On hydrant at Rice and Edmund street		1					
Rice	blow off north line of Edmund street		1					
Rice	south line of Como avenue						1	
Rice	north line of Como avenue				1			
Robert	north line of University avenue			1				
Robert	south line of University avenue			1				
Rondo	west line of Western avenue			1				
Rondo	east line of Mackubin street			1				
Rondo	west line of Rice street			1				
Ross	east line of Seventh street			1				
St. Anthony	west line of Western avenue			1				
St. Peter	south line of Iglehart street			1				
St. Peter	south line of Tilton street			1				
St. Peter	south line of Martin street			1				
St. Peter	north line of Martin street			1				
St. Peter	south line of University avenue			1				
Selby	west line of Summit avenue			1				
Selby	west line of Nina avenue			1				
Selby	west line of Farrington avenue			1				
Selby	east line of Western avenue			1				
Selby	west line of Western avenue			1				
Selby	east line of Mackubin street			1				
Selby	east line of Dale street			1				
Seventh (east)	west line of Hoffman avenue					1		
Seventh	blow off SW. cor. Seventh & Hoffman av	1						
Seventh	west line of Maple street					1		
Seventh	north line of Beech street					1		
Seventh	south line of Farquier street					1		
Suction (main)	west line of Mississippi street							1
Suction (main)	west line of Mississippi for reservoir							1
Suction	blow off west line of Mississippi street			1				
Summit	east line of Wabasha street			1				
Summit	east line of St. Peter street			1				
Summit	east line of Rice street			1				
Summit	west line of Rice street				1			
Summit	blow off at west line of Rice street	1						
Summit	south line of Dayton avenue			1				
Summit	north line of Nina avenue			1				
Summit	east line of Western avenue			1				
Summit	east line of Mackubin				1			
Summit	blow off at Oakland avenue	1						
Summit	east line of Dale street			1				
Summit	west line of Dale street					1		
Third (east)	west line of Bates avenue			1				
Third (east)	east line of Bates avenue			1				
Third (west)	south line of Summit avenue			1				
Thirteenth	blow off at Thirteenth and Broadway	1						

LOCATION OF VALVES—Concluded.

(HIGH SERVICE.)

STREET.	LOCATION.	3 in.	4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Tilton	east line of Rice street			1				
Tilton	east line of St. Peter street			1				
Thomas	west line of Western avenue			1				
Topping	west line of Como avenue			1				
University	west line of Robert street					1		
University	blow off at east line of Rice street	1						
University	east line of Rice street					1		
University	west line of Rice street				1			
University	west line of Gaultier street				1			
University	east line of Western avenue				1			
University	west line of Western avenue				1			
Valley	west line of Broadway					1		
Virginia	north line of Summit avenue			1				
Virginia	south line of Selby avenue			1				
Virginia	south line of Dayton avenue			1				
Virginia	north line of Dayton avenue			1				
Wabasha	north line of Iglehart street			1				
Wabasha	south line of Central avenue			1				
Wabasha	north line of Central avenue		1					
Western	south line of Como avenue					1		
Western	north line of Lafond street					1		
Western	north line of University avenue					1		
Western	north line of Rondo street					1		
Western	north line of Dayton avenue					1		
Western	south line of Dayton avenue				1			
Western	south line of Holly avenue				1			
Western	blow off south line of Holly avenue	2						
		11	18	148	20	20	10	5

Number of valves laid this year on High service 162
Total number of valves on High Service..... 232
Total number of valves on High and Low service 640

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1885.

PIPE, FITTINGS, ETC.

132 feet 30 inch pipe.
144 " 24 " "
72 " 20 " "
156 " 16 " "
948 " 12 " "
732 " 6 " "
684 " 4 " "
48 " 3 " "
7 " 30 " curvature pipe.
1 " 24 " " "
1 " 20 " " "
3 " 16 " " "
2 " 12 " " "
10 " 6 " " "
22 " 4 " " "
6 6 " quarter bends.
3 4 " " "
1 30 " sleeve.
2 24 " "
2 20 " "
3 16 " "
2 12 " "
35 6 " "
25 4 " "
1 20 " plug.
2 16 " "
5 12 " "
65 6 " "
72 5 " "
2 6 " hoods.
3 4 " "
1 30x 6 inch 4-way branch.
1 20x 6 " 4 " "
1 20x 4 " 3 " "
1 16x12 " 4 " "
4 16x 6 " 3 " "
2 12x 6 " 4 " "
1 12x 4 " 4 " "
5 12x 6 " 3 " "
8 12x 4 " 3 " "
2 12x 3 " 3 " "
17 6x 6 " 4 " "
26 6x 4 " 4 " "
9 6x 4 " 3 " "
4 6x 3 " 3 " "
4 4x 4 " 4 " "
3 4x 4 " 3 " "
4 4x 3 " 3 " "
1 reducer, from 20 to 12 inch.
1 " " 16 to 12 "
1 " " 12 to 6 "
3 " " 6 to 4 "
51,870 pounds pig lead.
50 " hemp packing.
3 cans blasting powder.
200 feet fuse.

GATE AND GATE DUPLICATES.

1 20 inch gate.
3 16 " "
1 12 " "
17 6 " "
7 3 " "
1 2½ " "
6 1½ " "
5 1¼ " "
18 Bingham & Morgan's iron gate boxes, complete.
2 16 inch gate stems.
6 6 " " "
11 4 " " "
2 3 " " "
1 16 " nut and wedge.
3 4 " " " "
1 3 " " " "
3 pairs 4 inch gate faces.
6 nuts for top of gates.
2 pairs brass seats for gates.
2, 4 inch domes for gates.

HYDRANTS AND HYDRANT DUPLICATES.

10 Mathew hydrants, complete.
2 " " incomplete.
30 Holly hydrants.
2 steamers for thawing out hydrants.
1 lot of miscellaneous duplicates for hydrants.
1 lot of miscellaneous duplicates for Mathew hydrants.
1 kit of tools for repairing hydrants.
6 drip boxes for hydrants.
12 hydrant wrenches.

PIPE LAYING TOOLS.

8 lead ladles.
7 " pots.
7 " furnaces.
4 derricks.
3 sets pipe skids.
4 pairs tackle, block, and fall.
1 windlass.
100 feet 1 inch rope.
4 pipe ropes.
1 tunnel pipe truck.
8 gate wrenches.
1 pair rubber mitts.
10 pairs rubber boots.
5 hand saws.
2 buck saws.

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1885—CONCLUDED.

PIPE LAYING TOOLS—*Continued.*

1 ice saw and chisel.
26 tubular lanterns, red and white
12 oil cans.
10 monkey wrenches.
102 "D" handle shovels.
171 picks.
6 axes.
3 hand axes.
7 heavy blasting chains.
26 " " timbers.
4 prs. chains, frm. 12 to 30 in. pipe
24 sand picks.
19 buckets.
13 dirt rammers.
8 axe and sledge handles.
4 pipe scrapers.
8 wheelbarrows.
2 pairs grab tongs.
2 hoisting buckets.
4 plug and feather drills.
14 steel crowbars.
5 pipe rammers.
13 rock drills.
11 steel sledge hammers.
7 " striking hammers.
12 drill hole scrapers.
11 tamping bars.
5 jumpers.
6 rock wedges.
1 puddling bar and wrench.
1 grindstone.
12 set caulking tools.
6 tool boxes.
4 yds. blue clay.
1 Edison diaphragm wrecking pump and suction.

CONNECTION STOCK AND TOOLS.

500 ft. ½ to 3 inch galv. iron pipe.
1 platform scale.
1 beam scale.
1 lot iron pipe fittings, from ½ to 4 inches.
2,000 lbs. lead pipe, from ½ to 1½ in.
¾ box of candles.
¾ barrel kerosene oil.
8 lbs. horse shoe nails.
1 pipe vise.
1 blacksmith's vise.
1 force pump.
1 dripped pump.
1 sand pump.
1 set stocks and dies, ¼ to 1 inch.
1 set numbering dies.
2 wrought iron cutters.
13 pairs tongs, from ½ to 2 ins.
1 oil stone.
1 crow-foot and ratchet.
1 set taps and drills, fr. ⅜ to 2 in.
1 brace.
2 kits plumber's tools, complete.
2 Mueller's tapg. mach., complete
11 poles for setting stop boxes.
3 clay augers and 4 sand scoops.
7 rods for turning on and shutt'g off water.
5 sets 4 inch cement pipe moulds
340 ft 4 in. cement pipe for stop bxs.
50 Bingham & Morgan stop boxes
238 corporation taps, ⅜ to 1 inch.
101 lbs. solder.
2 barrels cement.
8 gate box covers, old.
42 stop " " "

MISCELLANEOUS AND STABLE ACCOUNTS.

3 horses.
1 large truck for from 24 to 30 in. pipe.
1 truck.
2 wagons.
1 bob sleigh.
1 cutter.
3 sets single harness.
6 horse blankets.
1 buffalo robe.
3 whips.
1 feed box.
10 bushels of oats.
50 lbs of bran.
½ ton of hay.
1 anvil.
1 keg 20-penny nails.
40 lbs. 8-penny nails.
1 farmer's kettle.
2,000 sewer brick.
1 drawing knife.
1 truck skid.
3 set branding irons.
3 mason's trowels.
3 levels.
1 manhole frame and 2 covers.
100 feet ½ inch hose.
4 sections 2½ inch hose.
2 wall tents.
2 heating stoves.
1 old row boat at lake.

METERS.

55 meters, from ⅝ to 2 inches.
37 " good order.
18 " bad order.

ENGINEER'S REPORT,

FROM PUMPING STATION,

FOR THE YEAR ENDING NOVEMBER 30, 1885.

Months.	No. of Days.	Average number of Hours per Day.	Total Gallons per Month.	Average Number of Gallons per Day.	Pounds of Coal used per Month.	Average pounds of Coal per Day.	Average Head on Pumps in pounds.	
December ....1884 ...	13	24	6,336 270	487,405	28,804	2,215	66	Engine No. 1.
January.....1885....	31	24	14,289,632	459,323	67,331	2,172	63	
February .....1885....	28	24	11,925,338	425,905	54,876	1,959	60	
March .....1885 ...	31	24	11,498,720	370,931	45 571	1,470	60	
April..... .....1885 ...	30	24	10,342 840	344 761	37,930	1,264	60	
May... 1885	31	24	18.776,552	605,695	61,431	1,980	60	Engines Nos. 1 and 2.
June.....1885....	30	24	36.750,712	1,225,835	107.172	3.572	60	
July.....1885....	31	24	14 271,574	460,372	40.898	1 319	60	
August.....1885....	31	24	22,596.295	728,041	60.744	1,959	65	
September....1885....	30	24	14.040,668	468,022	52,454	1,415	60	
October.....1885....	31	24	25,812,911	832 645	58.036	1.872	60	
November....1885....	30	24	38,997,400	1,299,913	73,762	2,458	62	
Totals.....	347	8.328	225.588.912	7.708,848	689 009	23,655	736	
General Average per Month..			18.799,076	642,404	57.417 5-12	1,971¼	61⅓	

NOTE—Coal for heating building is included in above statement.

MARTIN FEIST, Chief Engineer.

The following are the principal dimensions of the engines and boilers:

2 boilers 54 inches in diameter and 16 feet long. 40 four inch tubes in each boiler.

ENGINES, COMPOUND CONDENSING.

No. 1 Engine.

High pressure, cylinder 16 inches diameter, by 2 foot stroke.
Low pressure, " 31 " " 2 " "
Pump plungers, 14 " " 2 " "
Air pump, 14 " " 12 inch "
Fly wheels, 8 feet in diameter; weight, 4,000 pounds each.
Total weight of engine, 75 tons.
Capacity, 2,000,000 gallons at 44 revolutions per minute.

No. 2 Engine.

Same type as No. 1 engine.
High pressure, cylinder, 21 inches diameter by 2½ foot stroke.
Low pressure, " 39 " " 2½ " "
Pump plungers, 18¼ " " 2½ " "
Air pump, 17 " " 12 inch "
Fly wheels, 10 foot diameter; weight, 6,000 pounds each.
Total weight of engine, 100 tons.
Capacity, 3,900,000 gallons in 24 hours at 40 revolutions per minute.

INVENTORY OF STOCK AND TOOLS.

1 vise.
2 set pipe dies and taps, from ¼ to 2 inches.
2 pipe cutters.
1 pair pipe tongs.
1 24 inch pipe wrench.
1 12 " " "
1 20 " Coe's wrench.
1 14 " " "
1 8 " " "
1 6 " " "
1 portable blacksmith's forge.
1 anvil.
2 pairs blacksmith's tongs.
1 blacksmith's sledge hammer.
1 hand hammer.
1 soft hammer.
4 files.
1 saw.
1 axe.
1 1½-ton chain block.
35 feet 1 inch rope.
50 " 1¼ " rubber hose.
150 " ¾ " linen hose.
18 " 1 " steam hose.
3 oil tanks
2 1-quart oil cans.
2 hand oilers.
1 quart measure.
1 pint measure.
20 engine drip pans.
1 steel coal barrow.
1 sand barrow.
2 coal scoops.
1 Fairbank's scale.
1 grind stone.
6 large tubular lanterns.
3 small " "
1 clock.
1 rain measure.
1 writing desk.
2 chairs.
2 ladders.
1 step ladder.
2 brooms.
1 tool cupboard.
1 clothing cupboard.
1 work bench.
6 spittoons.
50 tons hard coal.
8 tons soft coal.
4 cords of slabs.
100 lbs. waste.
30 gallons cylinder oil.
25 " engine oil.
40 " kerosene oil.
2 candle wicks.
10 lbs. hemp packing.
3 " plumbago.

ATTORNEY'S REPORT.

To the Board of Water Commissioners of the City of Saint Paul:

GENTLEMEN:—Since the date of my last report of December 1st, 1884, I have made settlements, on account of right of way claims, amounting to four hundred twelve and 17-100 ($412.17) dollars, deeds and contracts for which have been taken, properly recorded, and are on file in this office. An itemized statement of the different amounts, and to whom paid, is hereto attached and marked "A." I have also paid four hundred fifty-five 40-100 ($455.40) dollars, to W. S. Moore, as attorney's fees, and legal expenses. An itemized statement is hereto attached, marked "B."

The suit for damages of Messrs. Wilson & Rogers, against the Board, commenced in 1884, was tried before referee, J. B. Beals, in the months of June and July, last, and he reported in favor of the defendant, The Board of Water Commissioners, and a motion for a new trial has been made by the plaintiff, which has been argued by the respective attorneys, taken under advisement by the Court, and no decision therein filed up to this date.

On March 19th, 1885, one James B. Power, as assignee, commenced an action in the District Court of this county against the City of Saint Paul and the Board of Commissioners, to recover whatever balance there was then due and owing upon the two several contracts made and entered into by Messrs. Hough and Gear with said Board of Water Commissioners, which action came on for hearing June 4th, 1885, and a stipulation made and filed, whereby a verdict was rendered in favor of the plaintiffs, subject to the adjudication of the claims made and filed against said contractors, after which, whatever balance remained due, a judgment was to be entered and perfected of record in favor of said plaintiff, if any balance should remain after paying said claims. Said action is still pending and undertermined. No expenses have been incurred in said action as yet.

An inventory of property owned by this Board in the office of the engineer and attorney is hereto attached and marked "C."

Respectfully submitted,

S. P. FOLSOM, Att'y.

December 1st, 1885.

"A."

RIGHT OF WAY EXPENSES.

STATEMENT.

Jan.	1885.	Jadok Kohler	$150 00	
Feb.	"	P. J. Hahn	50 00	
"	"	Clerk of District Court	10 45	
"	"	Register of Deeds	75	
March	"	Register of Deeds	75	
April	"	Bristol & McArthur, Record book for Deeds	6 77	
"	"	Register of Deeds	9 75	
"	"	Clerk of District Court	5 00	
May	"	Register of Deeds	1 25	
July	"	E. Paul	13 50	
"	"	Clerk of District Court	5 90	
Aug.	"	A. Wharton and A. K. Barnum	75 00	
"	"	J. Farrington and C. A. Morton	75 00	
"	"	Clerk of District Court	1 40	
Sept.	"	Register of Deeds	2 25	
"	"	Railroad fare and expenses, examining right of way	4 40	
		Total		$412 17

"B."

LEGAL EXPENSES.

STATEMENT.

May	1885.	W. S. Moore, Attorney	$100 00	
"	"	Clerk of District Court	3 50	
"	"	Fees and subpœnas	10 48	
July	"	S. D. Hillman	71 25	
July	"	Clerk of District Court	5 25	
Sept.	"	W. S. Moore	40 00	
"	"	W. S. Moore	$225 00	
		Total		$455 48

"C."

INVENTORY.

1 Young's Level No. 5345.
4 50 feet steel tapes.
1 French curve.
1 set pins.
2 Poles.
1 Gardner & Sons Plain transit.
1 Gardner & Sons level.
1 100 foot steel chain.
1 Nickle plated steel straight edge.
2 Waste paper baskets.
2 Paper weights.
2 Spittoons.
2 Inkstands.
2 India ink slabs.
1 Letter press.
1 Drawing brush.
1 Cup.
1 Copying brush.
1 pair shears.
4 sable brushes.
1 Paper protractor.
1 U. S. standard scale.
1 Revolving desk.
1 Square desk.
1 large drafting board.
1 small drafting board.
1 set blue print apparatus, complete.
1 Revolving chair.
4 common chairs.
1 Stool.
1 Step ladder.
1 small table.
1 County map.
1 City map.
1 U. S. Map.
1 Map of City Water Supply.
1 Book case.
1 Nonious compass.
1 Boeringer level.

ANNUAL REPORT

OF THE

TREASURER

OF THE

BOARD OF WATER COMMISSIONERS.

CITY OF SAINT PAUL,
OFFICE OF THE CITY TREASURER, Dec. 2, 1885.

To the Honorable, the President and Board of Water Commissioners of the City of Saint Paal:

GENTLEMEN:—I have the honor to submit to you the following report of the receipts and disbursements as Treasurer of the Board of Water Commissioners from December 1st, 1884, to December 1st, 1885.

RECEIPTS.

Balance on hand December 1st, 1884, commencement of fiscal year, exclusive of coupon account.....				$ 244 22
Dec. 1, 1884.	J. Caulfield, sec'y.....			20,000 00
Dec. 3, "	do	do	.....	30,000 00
Dec. 29, "	do	do	.....	5,000 00
Jan. 10, 1885.	do	do	.....	20,000 00
Jan. 29, "	do	do	.....	5,000 00
Feb. 26, "	do	do	.....	4,000 00
Mar. 12, "	do	do	.....	3,000 00
Mar. 27, "	do	do	.....	9,500 00

Apr. 5, 1885	J. Caulfield, Sec'y	$1,500 00	
Apr. 28, "	do do	2,700 00	
May 2, "	do do	2,000 00	
May 20, "	City bonds	400,000 00	
May 20, "	City bonds, accrued interest	1,666 67	
May 27, "	J. Caulfield, sec'y	2,000 00	
June 23, "	do do	15,000 00	
June 27, "	do do	1,500 00	
July 20, "	do do	20,000 00	
July 28, "	do do	8,000 00	
Aug. 19, "	do do	5,000 00	
Aug. 28, "	do do	5,000 40	
Sept. 16, "	do do	5,000 00	
Sept. 28, "	do do	5,000 00	
Oct. 15, "	do do	5,000 00	
Oct. 27, "	do do	9,000 00	
Nov. 17, "	do do	4,000 00	
Nov. 25, "	do do	4,844 67	
Nov. 25, "	do do	8 00	
Aug. 3, "	W. E. Burton, County Treasurer, frontage tax 4	11,82 17	
Nov.	" "	442 76	
Total			$606,233 86

DISBURSEMENTS.

Dec. 1884.	Warrants paid	$ 28,486 58
Jan. 1885.	" "	40,092 00
Feb. "	" "	4,618 73
March, "	" "	19,583 97
April, "	" "	5,057 02
May, "	" "	202,706 35
June, "	" "	44,199 52
July, "	" "	51,969 63
Aug. "	" "	33,686 41
Sept. "	" "	43,431 70
Oct. "	" "	28,964 90
Nov. "	" "	20,174 43
		$522,971 24
By balance December 1st, 1885		83,262 62
Total		$606,233 86

OLD WATER COMPANY COUPON ACCOUNT.

RECEIPTS.

Balance on hand Dec. 1, 1884	$ 43 92	
Dec. 10, 1884. City Treasurer to pay coupons	6,448 00	
July 1, 1885. " " " "	6,448 00	
Total		$12,939 92

DISBURSEMENTS.

Interest coupons paid on Old Water Co. debt		
Jan. 19	$4,380 00	
Feb. 5	380 00	
Feb. 20	1,460 00	
March 6	140 00	
July 18	5,460 00	
Aug. 6	480 00	
Aug. 18	200 00	
Nov. 11	20 00	
Total		$12,520 00

EXPENSE ACCOUNT.

Paid for exchange and expressage in paying coupons in New York.

Jan. 19	$17 52	
Feb. 5	1 52	
Feb. 20	7 40	
March 5	55	
July 18	21 84	
Aug. 6	1 90	
Aug. 18	80	
		$ 51 53
Total disbursements		$12,571 59
By balance		368 39
		$12,939 92
Total to credit of Water Department		$83,262 62
Total to credit of Old Water Company interest account		368 39
Total December 1st, 1885		$83,631 01

Respectfully submitted,

GEORGE REIS, Treas. ex-officio, Water Dep.

M. N. Baker 1807

FIFTH ANNUAL REPORT

OF THE

Board of Water Commissioners

OF THE

CITY OF ST. PAUL,

DECEMBER 1, 1886.

GLOBE JOB OFFICE,
D. RAMALEY & SON, PRINTERS,
1886.

VDLA
(St. Paul)

FIFTH ANNUAL REPORT

OF THE

Board of Water Commissioners

OF THE

CITY OF ST. PAUL,

DECEMBER 1, 1886.

GLOBE JOB OFFICE,
D. RAMALEY & SON, PRINTERS,
1886.

OFFICERS

OF THE

CITY WATER WORKS,

DECEMBER 1, 1886.

BOARD OF WATER COMMISSIONERS.

J. F. HOYT, President;
C. W. GRIGGS,
C. D. GILFILLAN,
P. H. KELLY,
EDMUND RICE, Mayor, member *ex-officio*.

JOHN CAULFIELD, Secretary;
JOHN B. OVERTON, Superintendent;
S. P. FOLSOM, Attorney;
MARTIN FEIST, Engineer of Pumping Station;
DANIEL MULLANE, Ass't Eng. " "

FIFTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE CITY OF ST. PAUL,

FOR THE YEAR ENDING NOVEMBER 30, 1886.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1886.

To the Honorable The Mayor and Common Council of the City of St. Paul:

GENTLEMEN:—Herewith is submitted the Fifth Annual Report of the Board of Water Commissioners, and being for the year ending November 30th, 1886.

A careful perusal of the papers from the several officers of the board, constituting principally the substance of this report, is earnestly invited.

Mr. Caulfield, secretary of the board, gives a full history of the work in this department. He adds to an itemized statement of the year's financial operations, a summary of all receipts and disbursements from the purchase of the water works by the city to the date of this report.

Some items of interest are here noted:

Bonded indebtedness of the city on account of the water works	$1,660,000
Annual interest on same	84,300

New water connections this season, 1,008. Last season there were made 1,009. Total in to date, 4,947.

In all new connections the plumbing is examined by the inspector of the board and reported as conforming to the rules before water is turned on. (The rules here do not require the inspector to pass upon the sanitary condition of the work.) It may not be out of place in this connection to suggest, that if the party having plumbing done would not *turn on* the pay for the same until he was presented with a certificate from the office of the building inspector that the job had been examined, tested, and found correct, much trouble would be avoided and far better work secured.

Meter rates have been lowered twice and family rates once during the year. And if revenues have been correctly estimated the Board can furnish a further reduction in the latter rates the coming season. Also the recommendation of the secretary can be approved, that a reduction be made in the price of water for street sprinkling, from 35 to 50 cents per week per 100 feet on the street, as heretofore charged, to 25 cents.

It will be seen from Mr. Caulfield's report that he insists upon conducting this department of the city on strictly department business principles—that is, paying all demands and exacting all dues. Col. Ludlow, late Chief Engineer of the water department of Philadelphia, says: "I am clearly of the opinion that the use of water in city properties and offices should be subject to at least as careful regulation as in others, and in particular that the cost to the city of the water department should not be artificially enhanced in order to reduce the expenses of maintaining the other departments. It would be a great advantage, he continues, if the accounts of the water department could be so kept as to exhibit proper credit for services rendered to other city departments as well as to the citizens generally, in other words that every department should pay its own bills. Were this principle made of general application, I am satisfied that much improvement would be affected in the direction of greater system and economy of administration."

Before dismissing the name of our secretary from this review,

the Board wishes to record its appreciation of the efficient and conscientious services of Mr. Caulfield in the work of one of the most difficult and responsible positions in the city.

Superintendent Overton gives as the amount of mains laid this year 18 miles and 3,334 feet. Laid last season, 23 miles and 2,583 feet. Total to date, 85 miles and 5,188 feet. Fire hydrants now set, 673. Sprinkling hydrants, 81. He estimates the mains to be laid the coming season at about 18 miles.

In this work he crosses the river into the Sixth Ward, goes out into the Arlington Hills district, and extends the system generally east and west.

By reading the report of the Superintendent fully the public will get a knowledge of the rapid spread of the water system throughout the city. And the Board sees here the propriety of promising to extend the works into the populous districts of the Seventh Ward as soon as the proper streets as graded.

Mr. Overton finds great difficulty in maintaining in many places sprinkling hydrants. Sprinkling must be done, and these hydrants must be on the line of the mains and numerous enough and sufficiently convenient to secure the best and cheapest sprinkling service. The condition and surroundings of these hydrants will be improved as much as possible by the Superintendent, and some new and stringent rules made governing their use by the employees of sprinkling contractors. And so, it is hoped, will be removed cause for all reasonable complaint.

From the report of Mr. Folsom, who in this matter is acting as Engineer of the Board, it will be seen that from certain levels he has had taken, covering a portion only of our water area and showing the feasibility of diverting certain streams and controlling the water of certain lakes, he seems warranted in the belief that the district surveyed, at comparatively small cost, will furnish water for a half million people, while with the addition to the system of the unsurveyed territory, from his general knowledge of its resources, a supply can be obtained for a still greater population.

Mr. Feist, engineer at the pumping house, contributes a table of figures and data showing, among other things, the coal consumed and water pumped at his station during the year.

In this connection the Board calls attention to the report of Messrs. Harrison and Rundlett, civil engineers, employed on the part of the city as experts in testing the pumping machinery furnished by E. P. Allis & Co. for these works.

It will be seen that both engines fall a little short of the guaranteed duty. But in all other respects, the experts say, the builders of this machinery have fulfilled their contract.

Settlement was made by deducting $2,000 from the contract price, with a fixed time within which Messrs. Allis & Co. might—but wholly at their own expense—have another test made. They have not availed themselves of this privilege, and the account is practically closed.

To conclude, the good conduct and efficient labors of all the officers and more responsible employees in this department are recognized and appreciated. Nor would the Board seem to be unmindful of the day laborer, whose faithful services during the summer months would entitle him to employment the year round did the character of the work here permit.

Respectfully submitted,

J. F. Hoyt.
P. H. Kelly.
Edmund Rice.
C. W. Griggs.
C. D. Gilfillan.

SECRETARY'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1st, 1886.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—I respectfully submit to your Honorable Board my Fifth Annual Report, with accompanying Statements, showing in detail, under appropriate heads, the financial operations of the Water Department for the year ending November 30th, 1886.

REVENUE.

Cash on hand December 1st, 1885		$83,262 62
General water receipts	$114,861 21	
Miscellaneous water receipts	15,162 72	
Connections, (street services)	24,046 61	
Shutting off and turning on water	93 00	
Repairs	46 20	
Extensions	1,174 16	
Bills payable	55,000 00	
Frontage tax	19,538 26	
Construction, (new supply)	69 90	
		$229,992 06
Total		$313,254 68

DISBURSEMENTS.

General maintenance	$17,976 64	
Connections, (street services)	23,172 25	
Repairs	4,354 11	
Meters	1,456 35	
Extensions	138,694 54	
Construction	19,657 46	
Interest	85,009 36	
Bills payable	20,000 00	
Refunded frontage tax	5 60	
Total		$310,326 31
Balance		$2,928 37

The general water receipts, including high and low service, and meters, were $114,861.21, an increase of $11,895.46 over the former year, notwithstanding the reduction in water rates, which went into effect on January 1st last.

The miscellaneous water receipts, from builders, water carts, flushing sewers, filling cisterns, and sprinkling streets, were $15,162.72, an increase of $1,932.06. Repair account is credited with $46.20, being amount collected from the City of St. Paul and Board of Fire Commissioners for damages caused to hydrants and mains.

Extension account is credited with $1,174.16, of which $316.50 was received from the sale of 633 loads of rock at 50cts; $332.74 from sale of scrap iron, oil barrels, and valves; $249.19 for pipe sold to McArthur Bros.; $251.09 from Board of Fire Commissioners for pipe and labor and setting hydrant in connection with artesian well at Yeorg's Brewery; and $24.64 retained and unclaimed on pay-rolls for the year. Construction account is credited with $69.90, being amount received for cement testing machine sold to the city.

INTEREST, REPAIR, GENERAL MAINTENANCE AND OTHER ACCOUNTS.

$85,009.36 has been paid on account of interest on bonds and loans, $4,354.11 on account of repairs on mains, hydrants and valves, caused principally by change of grades of streets, width of sidewalks, and re-laying and re-setting hydrants. $17,976.64 was paid on account of general maintenance, of which $5,831.32 was for maintaining pumping station, for which $2,460.00 was for salaries, $2,939.26 for fuel, $215.17 for machine oil, waste and tallow, $69.92 for kerosene oil, and $146.97 for insurance, tools, and repairs. $12,145.32 was for salaries of all officials, employes, office expenses, stationery, legal and all other expenses necessary in maintaining the works.

$1,456.35 was paid for meters; $23,172.25 for labor, lead pipe, brass goods, tools, and stop-cock boxes for street services.

$138,694.54 was paid on account of city extensions, of which $69,803.89 was for cast iron pipe and specials, $49,113.19 for labor, $8,736.00 for hydrants, $4,216.52 for valves, and $6,824.94 for tools and repairs, pig lead, and material. $19,657.46 on account of construction, (new supply), of which $12,000.00 was paid to E. P. Allis & Co., for pumping machinery and balance on account of labor, material, building and engineering, and right of way.

All pipe laying and other work has been done by the Board, as usual. The pay-rolls for the year amounted to $78,494.65, and the average monthly employes have been 185.

CONTRACTS.

On December 1st, 1885, there was $32,871.67 due on contracts, of which $12,000.00 has been paid on pumping machinery, leaving $20,871.67 still due, $2,000.00 of which is due on pumping machinery, and $18,861.64 on the Hough & Gear contracts for sections 1 and 2 of conduit and waste wiers A and B and terminal chamber.

Contracts have been let during the year amounting to $99,434.41, all of which have been completed and paid for.

BONDED DEBT.

No bonds have been issued by the City for Water Works purposes the past year. The present bonded debt is $1,660,000.00, including $160,000.00 of the Water Company's bonds, assumed by the City. These bonds will be due January 1st, 1889, and authority should be obtained from the Legislature this winter to pay the same upon maturity. The annual interest on the bonds is $84,300.00, which is paid out of the revenue of the works. The floating debt is $35,000.00.

FRONTAGE TAX.

There has been collected during the year, by the County Treasurer, $19,538.26 on account of frontage tax, of which $550.73 was for the tax for 1884, and $18,987.03 for 1885, leaving a balance of $27.13 due for the former year, and $1,602.53 for the latter.

The frontage tax assessment for 1886 has been made, and is now in the hands of the County Treasurer for collection, amounting to $33,787.68.

METERS.

There are now in use 200 meters, an increase of 34. The revenue derived from this source was $30,603.10, an increase of $1,120.11 over former year. It is the intention of this department to place meters on all livery stables, restaurants, laundries, manufacturing establishments where steam is used, and all other places where large quantities of water is used, or waste suspected.

SERVICES.

During the year, 1008 applications have been made for service connections, of which 369 were on the low or gravity service, and 639 on the high service. The receipts from this source have been $24,046.61, and disbursements $23,172.25. The total number of applications to date is 4947, of which 3500 are on low and 1447 on high service; an increase of 2936 since the City purchased the works, in August, 1882.

INSPECTION.

1497 permits were issued to plumbers to do work in connection with the introduction and extension of water services, as against 1454 in 1885 and 718 in 1884. One inspector is employed, and he is required to examine all premises where plumbing work of any kind is done.

In my last Annual Report, mention was made of service pipes being put in by sewer contractors, and their carelessness in putting in the same, causing considerable trouble and expense to this department and to consumers. We have had similar experience the past season; and I would renew my recommendation, that as a protection to consumers, that no connection be made with any service pipe unless the same is put in under the supervision of a licensed plumber.

WATER RATES.

A reduction of water-rates took effect January 1st, 1886, on low service and meter consumers, and on March 1st, on high service.

By comparison of the rates, as now adopted, with those of 1885, it will be seen that the following reductions have been made:

Blacksmith-shops, Steam-engines, Livery-stables, Water-closets	20	per cent.
Barber-shops and bath-tubs	25	" "
Sprinkling streets, with wagons, (except paved streets)	30	" "
Offices and sleeping-rooms	33⅓	" "
Drug-stores and School-houses	50	" "
Dwelling-houses, five rooms or less	50	" "
Dwelling-houses, six rooms or over	25 to 40	" "
Small stores, banks, and churches	40	" "
Beer-pumps	17	" "
Meters	10 to 40, averaging 25	" "

A still further reduction in meter rates was made to take effect October 1st last, averaging 22½ per cent.

In addition to above reductions, a discount of five per cent is allowed on semi-annual payments, if paid on or before the 6th of the month in which they become due.

Our present rates will compare favorably with those of other cities of equal size, still, complaints are made that our rates are too high; but they generally come from those who are not familiar with the rates of other cities. I would recommend that a further reduction in dwelling-house rates be made within the year.

I would also recommend a reduction for water for street sprinkling to twenty-five (25) cents per week per 100 feet.

ANALYSIS.

On March 15th, six samples of water were sent to Dr. C. N. Hewitt, Secretary of the State Board of Health, at Red Wing, for analysis. A report was made on May 27th, which is hereto attached, together with an extract from the letter from Dr. Hewitt accompanying same.

CONCLUSION.

I desire to return my thanks to the members of the Board for the uniform kindness and assistance rendered me in the performance of my duties, to J. B. Overton the Superintendent, and to the employes for the prompt and satisfactory manner in which they have performed their several duties.

Respectfully submitted,

JOHN CAULFIELD,

Secretary.

RECEIPTS AND DISBURSEMENTS FROM AUGUST 10, 1882, TO DECEMBER 1, 1886.

General water receipts, high service	$23,206.14		
" " low service	234,288.05		
" " meters	113,960.60		
		$371,454.79	
Miscellaneous receipts, builders	10,009.03		
" " water carts	2,590.93		
" " flushing sewers	1,364.48		
" " filling cisterns	9,658.57		
" " sprinkling streets	30,792.44		
		54,415.45	
Connections, services		69,471.65	
Frontage tax		31,808.16	
Construction		717.13	
Shutting off and turning on water		300.00	
Repairs		2,688.21	
Extension		9,259.64	
Bills payable		398 000.00	
Bonds		1,150,000.00	
Interest		20,911.06	
Total Receipts			$2,100,026.09

DISBURSEMENTS.

General maintenance.			
Salaries	$37,494.64		
Stationery and printing	2,242.78		
Miscellaneous	1,484.93		
Labor	6,005.90		
Material	8,345.79		
Stable, Feed	1,167.69		
Stable, Repairs	563.21		
		$57,254.94	
Connections.			
Labor	36,263.38		
Pipe	19,505.44		
Brass goods and stop boxes	10,580.14		
Tools and Miscellaneous	2,062.25		
		68,411.21	
Repairs.			
Hydrants, Labor $5,282.18			
Hydrants, Material 703 90	5,986.08		
Valves, Labor 86.78			
Valves, Material 81.08	167.86		
Mains, Labor 7,616.58			
Mains, Material 385.13	8,001.71		
		14,155.65	
Meters.			
Labor	289.55		
Freight and meters	5,079.46		
		5,369.01	
Extensions.			
Pipe and special castings	277,322.45		
Labor	194,851.81		
Tools and repairs of same	7,003.15		
Advertising	71.10		
Fire Hydrants	32,210.00		
Valves	33,905.66		
Lead and hemp packing	23,004.64		
Lumber and Material	5,765.21		
Miscellaneous	2,581.14		
		576,775.16	
Construction, new supply.			
Pipe and special castings	174,985.58		
Labor and contracts	422,836.56		
Tools and repairs of same	4,573.36		
Lumber and material	67,623.55		
Freight	9,342.66		
Engineering and right of way	78,728.62		
Miscellaneous and building account	12,990.41		
		771,080.74	
Interest		250,045.41	
Bills payable		393,000.00	
Refunded frontage tax		5.60	
Total disbursements			2,100,097.72
Balance			$2,918.37

RECEIPTS AND DISBURSEMENTS FROM DECEMBER 1, 1885, TO DECEMBER 1, 1886.

Dec. 1, 1885. Balance.			$ 83,262.62
General water receipts, high service	$ 16,006.32		
" " low service	68,251.79		
" " meters	30,603.10		
		$114,861.21	
Miscellaneous receipts, builders	2,706.38		
" " water carts	484.35		
" " flushing sewers	261.83		
" " filling cisterns	1,459.58		
" " sprinkling streets	10,250.58		
		15,162.72	
Connections, services		24,046.61	
Extension		1,174.16	
Shutting off and turning on water		93.00	
Repair		46.20	
Construction		69.90	
Bills payable		55,000.00	
Frontage tax		19,538.26	
			220,992.06
Total receipts			$313,254.68

DISBURSEMENTS.

General maintenance.			
Salaries	$11,836.17		
Stationery and p inting	458.07		
Miscellaneous	330.14		
Labor	1,262.60		
Material	3,640.38		
Stable, Feed	323.56		
Stable, Repairs	125.72		
		17,976.64	
Connections.			
Labor	12,068.54		
Pipe	7,506.58		
Brass goods and stop boxes	3,034.86		
Tools and Miscellaneous	562.27		
		23,172.25	
Repairs.			
Hydrants, Labor $1,878.27			
Hydrants, Material 183.00	2,061.27		
Valves, Labor 26.95			
Valves, Material 22.15	49.10		
Mains, Labor 2119.29			
Mains, Material 124.45	2,243.74		
		4,354.11	
Meters.			
Labor	91.68		
Freight and meters	1,364.67		
		1,456.35	
Extensions.			
Pipe and special castings	69,803.89		
Labor	49,113.10		
Tools and repairs of same	1,955.02		
Advertising	2.72		
Fire hydrants	8,736.00		
Valves and valve boxes	4,216.52		
Lead and hemp packing	3,071.32		
Lumber and material	1,113.23		
Miscellaneous	82.65		
		138,694.54	
Construction, new supply.			
Labor and contracts	13,748.15		
Tools and repairs of same	62.55		
Lumber and material	513.29		
Engineering and right of way	4,717.87		
Miscellaneous and building account	615.00		
		19,657.46	
Interest		85,009.36	
Bills payable		20,000.00	
Refunded frontage tax		5.60	
Total disbursements			310,326.31
Balance			$2,928.37

STATEMENT SHOWING AMOUNT DUE THE WATER BOARD ON DECEMBER 1, 1886.

From City of St. Paul—			
	Water for fire purposes for six months to Dec. 1 1886	$13,698.15	
August 10, 1882	Repairing main on Lafayette avenue caused by sewer contractor	12.56	
" 29, "	Repairing gate box on East Seventh street, caused by pavement contractor	5.25	
Sept. 6, "	Repairing main on Westminster street, caused by sewer contractor	1.75	
June 9, 1884	Repairing main on Robert street, between Third and Fourth street, caused by settling of service sewer	54.86	
Sept. 2, "	Repairing main on Pearl street, caused by settling of service sewer	20.21	
" 11, "	Repairing main on Summit and Selby avenues, caused by sewer contractor	8.00	
Dec. 4. 1885	For flushing sewers	83.00	
August 13, "	Repairing Eighth street main, caused by settling of service sewer near Jackson st.	25.41	
May 1, "	Premium on $400,000 water bonds sold, dated April 1, 1885	22,018.00	
July 8, 1886	Repairing Broadway street main, caused by sewer contractor	18.43	
Oct. 29, "	Expense lowering Dale street main, caused by change of grade	233.75	
Nov. 18, "	Repairing main on Becker Place, caused by sewer contractor	27.24	
			$36,206.61
Application.	From Board of Fire Commissioners—		
1221	Engine house, Tenth and Broadway, to July 1, 1885	90.65	
303	Engine house, St. Peter street, to July 1, '85	98.00	
359	" Wakouta street, " "	57.70	
1243	" Ramsey and Leech streets to July 1, 1885	75.90	
2410	Engine house, Central hall, Eighth and Minnesota streets, to July 1, .1885	98.50	
Repair hydrants		31.05	
			451.80
Balance frontage tax assessment for 1884		27.13	
" " " " " 1885		1,602.53	
Frontage tax assessment for 1886		33,787.68	
			35,417.34
From builders			400.00
From street sprinkling contractors			162.09
From service connections			1,500.00
From St. Paul & Northern Pacific Railroad Company, lowering Mississippi street main			240.88
Total			$74,378.72

WARRANTS DRAWN AGAINST SAME.

1885.											
December	1	Warrant No.	2,096						$ 4,433.75		
December	9	"	"	2,097	to	2,117	inclusive		1,046.86		
December	15	"	"	2,118	"	2,121	"		376.24		
December	16	"	"	2,122					11,917.02		
1886.										$ 17,783.77	
January	2	"	"	2,123	"	2,124	"		9,771.13		
January	11	"	"	2,125	"	2,160	"		5,068.71		
January	18	"	"	2,161	"	2,166	"		1,710.68		
										16,550.52	
February	1	"	"	2,167					2,745.34		
February	6	"	"	2,168	"	2,190	"		4,143.90		
February	20	"	"	2,191	"	2,195	"		19,223.52		
										26,112.76	
March	1	"	"	2,196					2,446.86		
March	6	"	"	2,197	"	2,215	"		17,549.11		
March	22	"	"	2,216	"	2,220	"		44,534.16		
										64,530.13	
April	1	"	"	2,221					3,119.99		
April	8	"	"	2,222	"	2,251	"		9,813.43		
										12,933.42	
May	2	"	"	2,252					4,715.23		
May	4	"	"	2,253	"	2,271	"		14,247.44		
May	1	"	"	2,272	"	2,297	"		1,607.19		
										20,569.86	
June	1	"	"	2,298					9,431.81		
June	7	"	"	2,299	"	2,330	"		3,446.46		
June	28	"	"	2,331	"	2,338	"		1,542.78		
										14,421.05	
July	1	"	"	2,339					9,650.80		
July	8	"	"	2,340					6,416.09		
July	17	"	"	2,341	"	2,369	"		5,273.94		
July	28	"	"	2,370					3,759.35		
										25,100.12	
August	2	"	"	2,371					9,230.13		
August	6	"	"	2,372	"	2,397	"		4,696.80		
August	18	"	"	2,398	"	2,403	"		244.85		
										14,171.78	
Sept.	1	"	"	2,404					9,319.52		
Sept.	2	"	"	2,405	"	2,406	"		20,479.66		
Sept.	10	"	"	2,407	"	2,434	"		871.04		
										30,667.22	
October	1	"	"	2,435					9,621.92		
October	5	"	"	2,436	"	2,462	"		35,137.43		
October	14	"	"	2,463	"	2,447	"		656.82		
										45,416.17	
Novemb'r	1	"	"	2,478					10,456.17		
Novemb'r	9	"	"	2,479	"	2,516	"		11,613.34		
										22,069.51	
											310,326.31
		Balance in city treasury									$2,928.37

STATEMENT SHOWING AMOUNT PAID THE CITY TREASURER AND WARRANTS DRAWN AGAINST SAME FROM DECEMBER 1, 1885, TO DECEMBER 1, 1886.

1885.				
December	1 Balance in treasury as per last report			$ 83,262.62
December	1 Cash	$ 5,000.00		
December	30 Cash	4,000.00		
			$ 9,000.00	
1886.				
January	13 Cash	15,000.00		
January	27 Cash	9,000.00		
			24,000.00	
February	20 Cash	1,000.00		
February	25 Cash	3,000.00		
			4,000.00	
March	17 Cash	3,000.00		
March	22 Cash	10,000.00		
March	27 Cash	4,000.00		
			17,000.00	
April	8 Cash from county treasurer—frontage tax	1,031.34		
April	16 Cash	1,000.00		
April	27 Cash	4,000.00		
			6,031.34	
May	5 Cash	20,000.00		
May	22 Cash	4,000.00		
May	31 Cash	2,000.00		
			26,000.00	
June	7 Cash	3,000.00		
June	25 Cash	5,000.00		
			8,000.00	
July	2 Cash	5,000.00		
July	8 Cash from county treasurer—frontage	17,942.61		
July	9 Cash	16,000.00		
July	27 Cash	16,000.00		
			54,942.61	
August	3 Cash	5,000.00		
August	18 Cash	2,000.00		
August	28 Cash	4,000.00		
			11,000.00	
Sept.	18 Cash	10,000.00		
Sept.	28 Cash	7,000.00		
			17,000.00	
October	4 Cash	25,000.00		
October	5 Cash	2,500.00		
October	14 Cash	1,000.00		
October	28 Cash	5,000.00		
			33,500.00	
Novemb'r	1 Cash	3,500.00		
Novemb'r	8 Cash	1,500.00		
Novemb'r	9 Cash	10,000.00		
Novemb'r	16 Cash	2,400.00		
Novemb'r	19 Cash from county treasurer—frontage tax	564.00		
Novemb'r	27 Cash	1,553.80		
			19,518.11	
				229,992.06
	Total			$313,254.68

Warrants Drawn Against Same.

1885.											
December	1	Warrant	No.	2,008					$ 4,433.75		
December	9	"	"	2,097	to	2,117	inclusive		1,046.86		
December	15	"	"	2,118	"	2,121	"		376.24		
December	16	"	"	2,122					11,917.02		
										$ 17,783.77	
1886.											
January	2	"	"	2,123	"	2,124	"		9,771.13		
January	11	"	"	2,125	"	2,160	"		5,098.71		
January	18	"	"	2,161	"	2,166	"		1,710.68		
										16,550.52	
February	1	"	"	2,167					2,745.34		
February	6	"	"	2,168	"	2,190	"		4,143.90		
February	20	"	"	2,191	"	2,195	"		19,223.52		
										26,112.76	
March	1	"	"	2,196					2,446.86		
March	6	"	"	2,197	"	2,215	"		17,549.11		
March	22	"	"	2,216	"	2,220	"		44,534.16		
										64,530.13	
April	1	"	"	2,221					3,119.99		
April	8	"	"	2,222	"	2,251	"		9,813.43		
										12,933.42	
May	2	"	"	2,252					4,715.23		
May	4	"	"	2,253	"	2,271	"		14,247.44		
May	1	"	"	2,272	"	2,297	"		1,607.19		
										20,569.86	
June	1	"	"	2,298					9,431.81		
June	7	"	"	2,299	"	2,330	"		3,446.46		
June	28	"	"	2,331	"	2,338	"		1,542.78		
										14,421.05	
July	1	"	"	2,339					9,050.80		
July	8	"	"	2,340					6,416.00		
July	17	"	"	2,341	"	2,369	"		5,273.97		
July	28	"	"	2,370					3,759.35		
										25,100.12	
August	2	"	"	2,371					9,230.13		
August	6	"	"	2,372	"	2,397	"		4,696.80		
August	18	"	"	2,398	"	2,403	"		244.85		
										14,171.78	
Sept.	1	"	"	2,404					9,319.52		
Sept.	2	"	"	2,405	"	2,406	"		20,478.66		
Sept.	10	"	"	2,407	"	2,434	"		871.04		
										30,667.22	
October	1	"	"	2,435					9,621.92		
October	5	"	"	2,436	"	2,462	"		35,137.43		
October	14	"	"	2,463	"	2,447	"		656.82		
										45,416.17	
Novemb'r	1	"	"	2,478					10,456.17		
Novemb'r	9	"	"	2,479	"	2,516	"		11,613.34		
										22,069.51	
											310,328.31
		Balance in city treasury									$2,928.37

STATEMENT SHOWING AMOUNT PAID THE CITY TREASURER AND WARRANTS DRAWN AGAINST SAME FROM DECEMBER 1, 1885, TO DECEMBER 1, 1886.

1885.				
December 1	Balance in treasury as per last report			$ 83,262.62
December 1	Cash	$ 5,000.00		
December 30	Cash	4,000.00		
1886.			$ 9,000.00	
January 13	Cash	15,000.00		
January 27	Cash	9,000.00		
			24,000.00	
February 20	Cash	1,000.00		
February 25	Cash	3,000.00		
			4,000.00	
March 17	Cash	3,000.00		
March 22	Cash	10,000.00		
March 27	Cash	4,000.00		
			17,000.00	
April 8	Cash from county treasurer—frontage tax	1,031.34		
April 16	Cash	1,000.00		
April 27	Cash	4,000.00		
			6,031.34	
May 5	Cash	20,000.00		
May 22	Cash	4,000.00		
May 31	Cash	2,000.00		
			26,000.00	
June 7	Cash	3,000.00		
June 25	Cash	5,000.00		
			8,000.00	
July 2	Cash	5,000.00		
July 8	Cash from county treasurer—frontage	17,942.61		
July 9	Cash	16,000.00		
July 27	Cash	16,000.00		
			54,942.61	
August 3	Cash	5,000.00		
August 18	Cash	2,000.00		
August 28	Cash	4,000.00		
			11,000.00	
Sept. 18	Cash	10,000.00		
Sept. 28	Cash	7,000.00		
			17,000.00	
October 4	Cash	25,000.00		
October 5	Cash	2,500.00		
October 14	Cash	1,000.00		
October 28	Cash	5,000.00		
			33,500.00	
Novemb'r 1	Cash	3,500.00		
Novemb'r 8	Cash	1,500.00		
Novemb'r 9	Cash	10,000.00		
Novemb'r 16	Cash	2,400.00		
Novemb'r 19	Cash from county treasurer—frontage tax	564.00		
Novemb'r 27	Cash	1,553.80		
			19,518.11	
				229,992.06
	Total			$313,254.68

TRIAL BALANCE DECEMBER 1, 1886.

St. Paul Water Works (original purchase,	$510,000.00	.....
Bond account	.....	$1,660,
General water receipts	.....	371,
Miscellaneous water receipts	.....	54
Connection account (services)	.....	1,
Extension account	567,275.95	.....
General maintenance account	57,281.19	.....
Repair account	11 467.59	.....
Meter account	5,369.01	.....
Construction account (new supply)	770,576.03	.....
Interest account	229,134.35	.....
George Reis, City Treasurer	2,928.37	.....
Shutting off and turning on water	.....	
Frontage tax	.....	31,
Bills payable	.....	35,
Total	$2,154,032.49	$2,154,

07.281.19
11.467.59
68 748.78

CLUSIVE.

CONSTRUCTION—NEW SUPPLY.

Contracts.	Tools and Repairs of Same.	Lumber and Material.	Freight.	Engineering and Right of Way.	Miscellaneous and Building Account.	Interest.	Bills Payable.	Refunded Frontage Tax.
991 02	.....	$95 49	.....	$166 66	$25 00	.....	.....	.....
358 14	$6 80	100 92	.....	185 36	5 60	$10,207 35	.....	.....
.....	36 00	.....	.....	166 66	42 09	.....	.....	$2 60
.....	.....	.....	.....	166 66	.....	25,062 50	.....	.....
.....	75	.....	.....	166 66	25 30	.....	.....	.....
50 50	2 50	182 45	.....	2,389 86	16 16	7,017 50	.....	.....
140 25	3 45	15 23	.....	234 46	.....	.....	.....	3 00
124 00	1 50	13 06	.....	202 41	.....	10,175 35	.....	.....
195 75	5 55	5 60	.....	212 26	3 00	.....	.....	.....
226 37	.....	62 03	.....	177 41	13 20	466 66	$20,000 00	.....
63 75	4 00	1 30	.....	233 31	480 00	25,062 50	.....	.....
603 37	2 00	37 21	.....	416 16	4 35	7,017 50	.....	.....
748 15	$62 55	$513 29	.....	$4,717 87	$615 60	$85,009 36	$20,000 00	$5 60

.....	.....	.....	.....	$ 1,558 80	$8 00	$7,008 75	.....	.....
1,923 79	$2,230 91	$23,550 20	$3,418 74	25,647 53	8,250 02	28,371 39	$128,000 00	.....
1,918 22	1,966 68	41,164 20	5,916 00	42,013 66	1,722 59	50,337 33	65,000 00	.....
1,246 40	313 22	2,395 86	7 92	4,790 76	2,394 20	79,318 58	150,000 00	.....
1,748 15	62 55	513 29	.....	4,717 87	615 60	85,009 36	20,000 00	$5 60
1,836 56	$4,573 36	$67,623 55	$9,342 66	$78,728 62	$12,990 41	$250,045 41	$363,000 00	$5 60

BOND ACCOUNT, DECEMBER 1, 1886.

DATE OF ISSUE.	When Due.	Amount of Bonds.	Rate.	INTEREST PAYABLE.								Annual Interest.
				Dec. 1.	Jan. 10.	Feb. 1.	April 1.	June 1.	July 10.	Aug. 1.	Oct. 1.	
Water Company's bonds (assumed by City)	Jan. 1, 1889.	$160,000.00	8 per c't		$6,400.00				$6,400.00			$12,800.00
City bonds, June 1, 1882	30 years.	350,000.00	4 "	$7,000.00				$7,000.00				14,000.00
City bonds, August 1, 1883	36 years.	150,000.00	5 "			$3,750.00				$3,750.00		7,500.00
City bonds, April 1, 1884	25 & 30 years	600,000.00	5 "				$15,000.00				$15,000.00	30,000.00
City bonds, April 1, 1885	30 years	400,000.00	5 "				10,000.00				10,000.00	20,000.00
Total		$1,660,000.00		$7,000.00	$6,400.00	$3,750.00	$25,000.00	$7,000.00	$6,400.00	$3,750.00	$25,000.00	$84,300.00

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS FROM DECEMBER 1, 1885, TO DECEMBER 1, 1886.

Date of Contract	WITH WHOM AND FOR WHAT PURPOSE.	Am't of Contract.	Amount Paid.
1885			
Dec. 14	R. D. Wood & Co., Philadelphia, Pa., 182 fire hydrants at $48	$8,736.00	$8,736.00
" 29	A. W. Morgan, Buffalo, N. Y., stop cock and valve boxes	2,420.94	2,420.94
1886			
Jan. 20	Cin. & Newp't Iron & Pipe Co., Newport, Ky., water pipe and specials	68,078.89	68,078.89
" 22	R. D. Wood & Co., Philadelphia, valves	3,390.50	3,390.50
March 11	A. G. Foster, St. Paul, coal	3,220.76	3,220.76
" "	William F. Bailey, St. Paul, stop cocks and taps	1,555.90	1,555.90
" "	John Curran, St. Paul, drayage	1,352.17	1,352.17
" 26	H. P. Rugg, St. Paul, lead pipe	2,273.95	2,273.95
June 16	Robinson & Cary, St. Paul, pig lead	1,985.54	1,985.54
" "	Rogers, Willis & Co., St. Paul, lead pipe	2,273.10	2,273.10
Aug. 16	C. Allison, St. Paul, stable and storage house	473.00	473.00
Sept. 14	Rogers, Willis & Co., St. Paul, pig lead	1,417.16	1,417.16
" "	H. P. Rugg, St. Paul, lead pipe	2,256.50	2,256.50
	Total	$99,434.41	$99,434.41

CONTRACTS MADE PREVIOUS TO DECEMBER 1, 1884, AND UNCOMPLETED AT THE TIME OF LAST ANNUAL REPORT.

WITH WHOM AND FOR WHAT PURPOSE	Am't Due Dec. 1, 1885.	Amount Paid.	Am't Due Dec. 1, 1886.
E. P. Allis & Co., Milwaukee, Wis., engine and boilers	$14,000.00	$12,000.00	$ 2,000.00
Hough & Gear, Buffalo, N. Y., constructing sections 1 and 2 of conduit A. and B.	16,665.51	.....	16,665.51
Hough & Gear, Buffalo, N. Y., terminal chambers and waste wlers.	2,206.13	.....	2,206.13
Total	$32,871.67	$12,000.00	$20,871.64

List of Vouchers Paid from December 1, 1885, to December 1, 1886.

DECEMBER, 1885.

No. of Voucher.	Name.	Claim.	Amount.
2096	John Caulfield, sec'y St. Paul	Pay roll for November, 1885	$ 4,433.75
2097	McNamee & Keigher, St. Paul	Feed	14.78
2098	F. W. Luley, St. Paul	1 keg tallow	3.71
2099	E. P. Bassford, St. Paul	Plan for barn and shop	25.00
2100	Noyes Bros. & Cutler, St. Paul	10 pounds sal soda	.30
2101	Daily Globe, St. Paul	Daily, Oct. 1 to Dec. 31, 1885	2.70
2102	Pioneer Press Co., St. Paul	Blank books, etc	14.75
2103	H. P. Rugg & Co., St. Paul	Pipe fitting	255.87
2104	St. Paul Book & Stationery Co.	Stationery	1.34
2105	Prendergast Bros	Repairing furnace	.95
2106	Geo. J. Mitch & Co	Gasoline, etc	8.16
2107	Minnesota Coffee & Spice Co	Job printing	47.50
2108	P. H. Kelly Mercantile Co	Powder, fuse and oil	65.48
2109	Pollock, Donaldson & Ogden	Lamp, globes and burners	1.80
2110	Rogers, Willis & Co	Pipe fitting	14.72
2111	Slater & Riley	Horse shoeing	2.00
2112	Farwell, Ozmun & Jackson	Tools, etc	.50
2113	John Bell	4 bbls. L. cement	16.80
2114	Duggan Bros	Blacksmithing	27.05
2115	L. G. Kweton	Blacksmithing	13.30
2116	Frank Skok	Blacksmithing	12.20
2117	A. G. Foster	Fuel	517.95
2118	W. F. Bailey & Co	Brass fittings and repairs	215.62
2119	Taylor & Craig Co	Carpenter work	91.13
2120	Pioneer Press Co	Daily, to Jan. 5, 1886	9.15
2121	J. H. Fielding	Relaying pavement	56.91
2122	E. P. Allis & Co., Milwaukee, Wis	Estimate No. 3 pumping engines	11,927.02
			$17,783.77

JANUARY, 1886.

2123	John Caulfield, sec'y	December pay roll	$ 3,323.13
2124	Geo. Reis, city treasurer	Int. due January 10, 1886	6,418.00
2125	Geo. Reis, city treasurer	Int. due February 1, 1886	3,759.35
2126	H. H. Harrison, Stillwater	Expert testing pumps	230.00
2127	L. W. Rundlett	Expert testing pumps	65.00
2128	J. C. Nolan, agent	Lumber	6.65
2129	John Martin Lumber Co	Lumber	54.40
2130	L. W. Rundlett, city engineer	Lumber and labor testing waste weir	40.42

No of Voucher.	Name.	Claim.	Amount.
2131	St. Paul Furniture Co	1 water gauge	$ 2.00
2132	Beck & Rank	Lead and oil	4.20
2133	Boeringer & Sons	Labor on hook gauges	6.80
2134	W. F. Bailey & Co	Hydrant repairs, etc	16.80
2135	Scribner Roofing Co	1 iron plate	3.50
2136	Board of Fire Commissioners	165 feet old hose	33.00
2137	Pollock, Donaldson & Ogden	Lantern globes and wicks	1.10
2138	Slater and Riley	Horse shoeing	4.00
2139	McNamee & Keigher	Feed	12.11
2140	P. H. Kelly Mercantile Co	Powder, fuse and nails	84.90
2141	Minnesota Coffee & Spice Co	Job printing	11.25
2142	Robinson & Cary	Pipe fitting	8.72
2143	A. G. Foster	Fuel	230.76
2144	St. Paul Foundry Co	1 manhole	10.00
2145	Rogers, Willis & Co	Pipe fittings, etc	2.55
2146	Adam Decker	Hardware	.90
2147	Farwell, Ozmun & Jackson	Tools	.90
2148	John Bell	17 bbls. L. Cement	23.80
2149	Geo. J. Mitsch & Co	Gasoline, oil, etc	3.12
2150	Duggan Bros	Blacksmithing	35.85
2151	Frank Skok	Blacksmithing	32.65
2152	The Pioneer Press Co	Blank books	14.50
2153	H. P. Rugg & Co	Pipe and gasket packing	87.24
2154	St. Paul Book & Stationery Co	Stationery	11.55
2155	John Caulfield, sec'y	Cash adv. freight, etc	78.70
2156	Leonard & Ellis, Chicago, Ill	1 bbl. Valvoline, etc	54.45
2157	National Meter Co., New York	1 2 inch Empire Meter	47.25
2158	C. A. Barthelett, Milwaukee, Wis	6 cement moulds	36.75
2159	Atlantic Oil Co., Cleveland, O	Oil compound	34.45
2160	J. H. Fielding	Repaving	18.09
2161	Sheckle, Harrison & Howard, Iron Co., St. Louis, Mo.,	Pipe	1,642.27
2162	D. Ramaley & Son,	Job printing	8.75
2163	Taylor & Craig Co	Carpenter work	7.60
2164	F. M. Towar	Drayage	36.56
2165	Kenney Bros	25 pounds ¼ iron cut to order	1.25
2166	J. DeGraw & Sons	Lumber	14.25
			$16,550.52

FEBRUARY, 1886.

2167	John Caulfield, sec'y	Pay roll for January, 1886	$ 2,745.34
2168	Cincinnati & Newport Iron & Pipe Co., Newport, Ky	Estimate No. 1 pipe	2,760.53
2169	W. F. Bailey & Co	Brass goods	425.50
2170	H. G. Foster	Fuel	624.50
2171	St. Paul Book & Stationery Co.	Stationery	8.62
2172	R. R. Nelson	Refunded frontage tax	2.60
2173	P. F. Fitzgibbon	Kalsomining office	18.00
2174	Auerbach, Finch & Van Slyck	Frame edging for office	8.33
2175	Stevens & Robertson	2 picture frames	3.00
2176	Peter Kerst	Blacksmithing	6.00
2177	Stockton, Lindquist & Co	4,000 sewer brick, $10.50	42.00
2178	The Pioneer Press Co	Voucher blanks, etc	15.25
2179	Slater & Riley	Horse shoeing	1.50
2180	P. H. Kelly Mercantile Co	Powder, fuse, etc	24.20
2181	Rogers, Willis & Co	Pipe fittings	4.39
2182	Farwell, Ozmun & Jackson	Hardware	3.75
2183	E. McNamee	Feed	11.62
2184	John Bell	Cement	22.40
2185	Frank Skok	Blacksmithing	24.65

No of Voucher.	Name.	Claim.	Amount.
2186	Duggan Bros	Blacksmithing	$ 29.05
2187	W. F. Bailey & Co	Repairs, hydrants and tools	19.08
2188	St. Paul Furniture Co	Refinishing desks and fixtures	11.25
2189	Geo. B. Vanderwork	2 copies atlas, environs of St. Paul	24.00
2190	H. P. Rugg & Co	Pipe fittings	53.68
2191	Cincinnati & Newport Iron & Pipe Co., Newport, Ky	Estimate No. 2 pipe	17,025.91
2192	R. D. Wood & Co., Philadelphia, Pa., fire hydrants		2,160.00
2193	Scribner Roofing & Cornice Co	Repairing pumps	3.66
2194	Minnesota Coffee & Spice Co	800 postals and printing	9.25
2195	John Caulfield, sec'y	Cash adv. for hay, freight, etc	24.70
			$26,112.76

MARCH, 1886.

2196	John Caulfield, sec'y	Pay roll for February, 1886	$ 2,446.86
2197	Proctor & Brown, Chicago, Ill	2 doz. picks and handles	42.00
2198	John Curran	Estimate No. 1 drayage	317.98
2199	W. F. Bailey	Estimate No. 2 brass fittings	374.05
2200	A. G. Foster	Estimate No. 6 coal	960.85
2201	J. J. Palmer	Refunded acc't repairs Broadway street main	40.00
2202	D. Ramaley & Son	6 doz. report boxes for vault	22.50
2203	Robinson & Cary	Pipe fittings	9.17
2204	John Bell	11 bbls. cement	15.40
2205	H. P. Rugg & Co	Pipe packing	2.80
2206	P. H. Kelley Mercantile Co	Powder, fuse and oil	48.67
2207	E. McNamee	Feed	12.68
2208	St. Paul Book & Stationery Co.	Stationery	2.08
2209	Duggan Bros	Blacksmithing	105.90
2210	Frank Skok	Blacksmithing	20.45
2211	Donaldson & Ogden	Lantern fixtures	1.70
2212	W. F. Bailey & Co	Repairs	10.45
2213	Geo. Mitsch & Co	Gasoline, etc	8.09
2214	Abbey & Alexander	Team to pump house	2.50
2215	Cincinnati & Newport Iron & Pipe Co., Newport, Ky	Estimate No. 3 pipe & specials	15,551.84
2216	Geo. Reis, city treasurer	Interest due April 1, 1886	25,662.50
2217	Cincinnati & Newport Iron & Pipe Co., Newport, Ky	Estimate No. 4	17,097.56
2218	R. D. Wood & Co., Philadelphia, Pa., Hydrants		2,184.00
2219	National Meter Co., New York	Meters	189.50
2220	Farwell, Ozmun & Jackson	½ doz taper files	.60
			$ 64,530.13

APRIL, 1886.

No. of Voucher.	Name.	Claim.	
2221	John Caulfield, sec'y	Pay roll for March	$ 3,119.99
2222	R. D. Wood & Co., Philadelphia, Pa.	estimate No. 3 Hydrants	1,734.00
2223	R. D. Wood & Co., Philadelphia, Pa.	estimate No. 1 valves	652.00
2224	Atlantic Oil Co., Cleveland, O.	1 bbl. engine oil	16.50
2225	A. G. Foster	Estimate No. 7 coal	647.70
2226	John Curran	Estimate No. 2 drayage	184.83
2227	W. F. Bailey & Co.	Estimate No. 3 brass fitting	431.25
2228	Jas. S. Burris	3,900 sewer brick	37.05
2229	John Caulfield, sec'y	Cash adv. for hay, freight, etc.	49.83
2230	D. Ramaley & Sons	Job printing	1.25
2231	Taylor & Craig Co.	Carpenter work	25.30
2232	A. H. Wilson	Damage by breaking of main	37.15
2233	P. H. Kelly Mercantile Co.	Powder, fuse and oil	59.39
2234	Duggan Bros.	Blacksmithing	79.85
2235	St. Paul Book & Stationery Co.	Stationery	2.42
2236	Geo. J. Mitsch & Co	Gasoline, etc.	5.85
2237	H. P. Rugg & Co.	Pipe fittings	45.02
2238	John Bell	Cement	12.60
2239	Farwell, Ozmun & Jackson	Tools, etc.	18.14
2240	St. Paul Rubber Co.	Rubber tubing, etc.	3.80
2241	Rogers, Willis & Co.	Pipe fittings	1.40
2242	Robinson & Cary	Pipe fittings	53.68
2243	J. DeGraw & Sons	Lumber	18.08
2244	E. McNamee	Feed	3.70
2245	Cincinnati & Newport Iron & Pipe Co., Newport, Ky.	Estimate No. 5 Pipe	3,684.80
2246	Donaldson & Ogden	Lantern fixtures	1.60
2247	Frank Skok	Blacksmithing	33.05
2248	Slater & Riley	Blacksmithing	4.25
2249	W. F. Bailey	Blacksmithing	13.75
2250	A. W. Morgan, Buffalo, N. Y.	Estimate No. 1 valve stop box's	1,332.50
2251	Jas. M. Reed, Newport, Ky.	Inspecting Pipe	322.75
			12,933.42

MAY, 1886.

No of Voucher.	Name.	Claim.	Amount.
2252	John Caulfield, sec'y	Pay roll for April, 1886	$ 4,715.23
2253	R. D. Wood & Co., Philadelphia, Pa.,	Estimate No. 3 hydrants	1,248.00
2254	R. D. Wood & Co., Philadelphia, Pa.,	Estimate No. 2 valves	861.25
2255	H. P. Rugg	Estimate No. 1 lead pipe	2,273.95
2256	Goodyear Rubber Co	8 pair rubber boots	26.95
2257	Campbell; Walsh & Gilson	1,000 lbs. gasket packing	66.25
2258	Auerbach, Finch & Van Slyck	1 awning	12.00
2259	D. Ramaley & Son	Job printing	15.35
2260	The Globe Publishing Co	Advertising	15.42
2261	Cincinnati & Newport Iron & Pipe Co., Newport, Ky	Estimate No. 6 pipe, etc	907.40
2262	J. M. Reed	Inspecting pipe, etc., at foundry	7.26
2263	Merritt & Esterbrook	Surveying	169.80
2264	John Curran	Estimate No. 3 drayage	101.48
2265	H. P. Rugg & Co	Pipe and fittings	34.01
2266	Charles Friend	Harness fittings and repairs	15.55
2267	E. F. Drake	Land at Vadnais Lake	1,400.00
2268	Geo. Reis, city treasurer	Interest due June 1, 1886	7,017.50
2269	The Erie Tel. & Tel. Co	Rent of tel. 1 yr to May 1, '86	60.00
2270	St. Paul Book & Stationery Co.	Stationery	5.12
2271	John Caulfield, sec'y	Cash adv. hay, gas, etc	20.15
2272	J. H. Fielding	Repaving	103.41
2273	Duggan Bros	Blacksmithing	16.25
2274	Thomas Brennan	Lumber	12.00
2275	Richard Price	Veterinary services	7.00
2276	P. H. Kelly Mercantile Co	Powder, fuse and oil	73.82
2277	Farwell, Ozmun & Jackson	Tools	216.22
2278	Geo. J. Mitsch & Co	Oil, gasoline, etc	4.76
2279	Donaldson & Ogden	Lantern fixtures	10.60
2280	E. McNamee	Feed	11.60
2281	Pioneer Press Co	Blank books and printing	34.75
2282	John Bell	Cement	14.00
2283	W. F. Bailey	Brass fittings and repairs	58.05
2284	Prendergast Bros	Chimney caps, etc	16.41
2285	H. Mueller & Sons, Decatur, Ill.	1 Tapping machine	86.00
2286	A. G. Foster	Fuel	37.75
2287	Robinson & Cary	Pipe fittings, etc., for pumps	2.25
2288	Rogers, Willis & Co	Pipe fittings	9.17
2289	Slater and Riley	Horse shoeing	7.50
2290	St. Paul Foundry Co	2 Trusses at pump house	182.45
2291	Frank Skok	Blacksmithing	26.95
2292	Boeringer & Sons	Repairing tape, etc	.35
2293	St. Paul Barrel Co	1 load sawdust	.75
2294	Peoples Ice Co	2 loads sawdust	1.75
2295	K. P. Cullen	Livery	20.00
2296	Catharine Hill	Land near terminal chamber	75.90
2297	Catharine Hill	Land for right of way	577.50
			$20,569.86

JUNE, 1886.

No of Voucher.	Name.	Claim.	Amount.
2298	John Caulfield, sec'y	Pay roll for May 1, 1886	$ 9,431.81
2299	Farwell, Ozmun & Jackson	Tools	3.30
2300	Rhodes & Morton	Iron and tools	14.48
2301	John Bell	Cement	28.00
2302	Slater & Riley	Horse shoeing	4.00
2203	Goodyear Rubber Co	1 piece rubber drill	1.00
2304	D. Ramaley & Son	Job printing	3.50
2305	E. McNamee	Feed	21.28
2306	Prendergast Bros	Tin pails and sprinkler	2.40
2307	Donaldson & Ogden	Lantern fixtures	4.37
2308	The Erie Tel. & Tel. Co	2 extension bells	11.00
2309	M. Breen	Stone cutting	35.00
2310	Richard Price	Veterinary services	3.00
2311	H. P. Rugg & Co	Pipe fittings	25.87
2312	Robinson & Cary	Hose and tools	82.38
2313	Register of Deeds	Recording deeds	2.25
2314	Clerk of District Court	Copy of order Gurney vs. City	1.50
2315	Minnesota Coffee & Spice Co	Job printing	50.00
2316	Springer Harbaugh	Refunded frontage tax	3.00
2317	S. P. Folsom	Railroad fare to Hopkins	4.85
2318	Frank Skok	Blacksmithing	55.70
2319	Duggan Bros	Blacksmithing	39.10
2320	J. H. Fielding	Repaving	234.30
2321	Rogers, Willis & Co	Pipe fittings	11.59
2322	Geo. J. Mitsch & Co	Gasoline, etc	8.87
2323	W. F. Bailey	Brass goods and repairs	125.50
2324	J. H. Schurmeier	Lumber	.75
2325	St. Paul Book & Stationery Co.	Stationery	4.56
2326	Thomas Brennan	Lumber	5.43
2327	A. W. Morgan, Buffalo, N. Y	Valve and service boxes	887.68
2328	R. D. Wood & Co., Philadelphia, Pa.,	Eddy valves	1,497.75
2329	National Meter Co., New York	14 Empire meters	256.22
2330	John Caulfield, sec'y	Cash adv. to pay freight, hay, etc	17.83
2331	Cincinnati & Newport Iron & Pipe Co., Newport, Ky	Pipe and specials	1,335.93
2332	John Curran	Estimate No. 4 drayage	59.78
2333	P. H. Kelly Mercantile Co	Powder, fuse and oil	85.17
2334	Abstract Clerk	Abstracts Vadnais Lake	3.55
2335	Merritt & Esterbrook	Engineering	45.00
2336	John Melrose, Vadnais Lake	Meals for engineers	1.40
2337	Daily Globe	3 months daily to June 30	2.70
2338	S. H. Thompson, White Bear	Board and team engineer	9.25
			$14,421.05

JULY, 1886.

Name.	Claim.	Amount.
John Caulfield, sec'y	Pay roll for June, 1886	$9,650.80
Geo. Reis, city treasurer	Interest on $160,000 bonds due July 10	6,416.00
E. McNamee	Feed	22.64
John Martin Lumber Co	Lumber	10.56
M. F. Kennedy & Bros	Lantern for tunnel	2.00
Minnesota Coffee & Spice Co	Job printing	6.75
St. Paul Book & Stationery Co.	Stationery	4.50
John Rogers, Jr., & Bro	Insurance	20.00
John Bell	Cement	18.20
Donaldson & Ogden	Lantern fixtures	9.63
D. Ramaley & Son	Job Printing	3.60
The Pioneer Press Co	Daily, Jan. 1 to July 1, 1886	5.00
K. P. Cullen	Team to Sandy Lake	6.00
Slater & Riley	Horse shoeing	6.00
P. H. Kelly Mercantile Co	Powder, fuse and oil	77.55
H. P. Rugg & Co	Pipe fittings	64.39
Farwell, Ozmun & Jackson	Tools	27.85
W. F. Bailey	Block tin and repairs	45.05
Prince & Shandrew	Insurance	30.00
Geo. J. Mitsch & Co	Oil, gasoline, etc	6.13
Clerk of District Court	Return to Supreme Court, Gurney vs. Board	19.75
Rhodes & Morton	Iron and steel	9.43
Thos. Brennan	Lumber	4.60
Duggan Bros	Blacksmithing	46.30
Geo. P. Wilson	Engineering	10.00
St. Paul Foundry Co	Special castings	22.20
Robinson & Cary	Valves and packing	195.15
Rogers, Willis & Co	Pipe fittings	4.55
Robinson & Cary	Estimate No. 1 and final pig lead	1,985.54
Rogers, Willis & Co	Estimate No. 1 and final lead	2,273.10
J. H. Fielding	Repaving	337.50
Geo. Reis, City Treasurer	Interest due August 1, 1886	3,759.35
		$25,100.12

AUGUST, 1886.

No of Voucher.	Name.	Claim.	Amount.
2371	John Caulfield, Secy	Pay Roll for July, 1886	9,230.13
2372	Cincinnati & Newport Iron Pipe Co., Newport, Kentucky	Estimate No. 8 pipe & specials	2,468.59
2373	R. D. Wood & Co., Phil'a Pa	Hydrants	1,440.00
2374	R. D. Wood & Co., Phil'a, Pa	Valves	275.25
2375	Donaldson & Ogden	Lanterns, etc	2.26
2376	The Globe Publishing Co	Advertising	15.44
2377	Prendergast Bros	Dippers and oil cans	2.40
2378	Martin Feist	Dinner for men cleaning Cond't	4.65
2379	Frank Skok	Blacksmithing	49.70
2380	Warner & Foot	1 county map	15.00
2381	D. L. Curtice	1 new city map	17.00
2382	Nicols & Dean	1 stone sledge	2.70
2383	Robinson & Cary	Valves	29.63
2384	Griggs & Foster	Coal and wood	80.50
2385	John Caulfield	Cash adv for stamps, gas, etc.	21.80
2386	Geo. Mitsch	Blacksmithing	84.75
2387	Lauer Bros	1 stone flag	4.60
2388	Taylor & Craig Co	Hydrant boxes	4.30
2389	S. P. Folsom	R. R. fare and livery to Cent'ville	3.00
2390	Potts Bros	Hay	4.35
2391	Slater & Riley	Horse shoeing	6.25
2392	P. H. Kelly Mercantile Co	Powder, fuse and oil	71.57
2393	H. P. Rugg & Co	Galvanized pipe and fittings	49.09
2394	Minnesota Coffee and Spice Co	Printing	6.00
2395	E. McNamee	Feed	12.46
2396	Goodyear Rubber Co	Rubber boots	17.50
2397	Farwell, Ozmun & Jackson	Tools	8.01
2398	D. Ramaley & Son	Job printing	54.60
2399	Field, Mahler & Co	Towels	2.46
2400	St. Paul Foundry Co	Special castings	34.45
2401	J. H. Fielding	Repaving	52,53
2402	John Curran	Drayage estimate NO. 5	96.19
2403	Rogers, Willis & Co	Pipe fittings	4.62
			$14,171.78

SEPTEMBER, 1886.

No of Voucher.	Name.	Claim.	Amount.
2404	John Caulfield, Sec'y	Pay roll, August, 1886	$9,319.52
2405	First National Bank	Note dated May 4th, and int.	20.466.66
2406	J. S. Kellogg	Making plats	10.00
2407	R. D. Wood & Co., Phil'a Pa	3 3-inch valves	24.00
2408	Atlantic Oil Co., Cleveland, Ohio	1 barrel engine oil	17.54
2409	John Caulfield, Sec'y	Bills paid as per receipts, hay postage, etc	21.90
2410	Auerbach, Finch & Van Slyck	Mounting map	1.50
2411	J. O. Enell	Damage caused by broken main	33.70
2412	Pioneer Press Co	Printing	12.50
2413	St. Paul Book and Stationery Co	Stationery	2.18
2414	J. De Graw & Sons	Lumber	8.19
2415	John Bell	Lime and cement	33.20
2416	Farwell, Ozmun & Jackson	Tools and supplies	12.95
2417	Duggan Bros	Blacksmithing, July	22.20
2418	Edward McNamee	Oats and bran	24.48
2419	M. F. Fielding	1558 sqr. ft. re-paving at 6c	93,36
2420	C. Collins & K. M'Crea	Blacksmithing	46.75
2421	Griggs & Foster	Coal and wood	56.25
2422	L. G. Kweton	Blacksmithing	14.55
2423	Geo. J. Mitsch & Co	Paints, oils, etc	70.78
2424	Robinson & Cary	Valves, tools, etc	45.24
2425	W. F. Bailey	Block tin, brass goods, etc	155.18
2426	P. H. Kelly Mercantile Co	Powder, fuse and oil	44.07
2427	Geo. Mitsch	Blacksmithing	53.05
2428	Slater & Riley	Horse shoeing	4.75
2429	H. P. Rugg & Co	Iron pipe and fittings	30.04
2430	Taylor & Craig Co	Carpentering	10.75
2431	H. E. Randall, attorney for Laura Olson	Damages caused by water	20.00
2432	Register of deeds	Copy of decree	75
2433	W. E. Magraw	Subscription to Globe to Sept. 9	2.00
2434	Thomas Brennan	Lumber	9.18
			$30,667.22

OCTOBER, 1886.

No of Voucher.	Name.	Claim.	Amount.
2435	John Caulfield, Sec'y	Pay roll for September, 1886	$9,621.92
2436	Geo. Reis, City Treasurer	Int. and Exchange due Oct. 1	25,062.50
2437	H. P. Rugg	Estimate No. 1 lead pipe	2,256.50
2438	Rogers, Willis & Co	Estimate No. 1 pig lead	1,417.56
2439	Cincinnati and Newport Iron & Pipe Co., Newport, Kentucky	Estimate No. 9, iron pipe	4,288.46
2440	National Meter Co., New York	Meters	583.45
2441	Crosby Steam Gauge and Valve Co., Boston, Mass	Relief valve	17.50
2442	C. Allison	Estimate No. 1 and final stable	473.00
2443	Griggs & Foster	Wood	35.50
2444	Geo. J. Mitsch & Co	Supplies	1.60
2445	Slater & Riley	Horse shoeing	9.00
2446	C. Collins & K. M'Crae	Blacksmithing	47.70
2447	W. F. Bailey	Pig tin, etc	27.38
2448	W. F. Bailey & Co	Estimate No. 6, brass goods	126.14
2449	Robert Seeger	Gasoline	5.07
2450	Robinson & Cary	Shovels, gasket packing, etc	107.74
2451	Farwell, Ozmun & Jackson	Files, axe and bush hook	5.15
2452	John C. Curran	Estimate No. 6, drayage	50.41
2453	M. F. Fielding	Re-paving	407.66
2454	P. H. Kelly Mercantile Co	Powder, fuse, oil, etc	59.22
2455	L. M. Maxfield, North Oaks	Boarding engineer force	40.20
2456	Jas. M. Reed, Newport, Ky	Insp. 384 tons water pipe, 16½c	63.44
2457	D. Ramaley & Son	Printing	9.25
2458	J. W. Cunningham & Co	Printing	3.75
2459	St. Paul Book & Stationery Co	Stationery	2.25
2460	Charles Friend	Repairing harness, etc	15.40
2461	Pioneer Press Co	Printing	13.25
2462	Geo. Mitsch	Blacksmithing	8.35
2463	K. P. Cullen	Livery	12.00
2464	J. I. Beaumont	Making frontage tax assessment	422.35
2465	Thomas Brennan	Lumber	10.20
2466	H. P. Rugg & Co	Pipe and fittings	5.35
2467	Rogers, Willis & Co	Pipe and fittings	12.45
2468	E. McNamee	Oats and hay	13.18
2469	Kenney Bros	Repairing boilers	31.61
2470	Taylor & Craig Co	Carpenter work	6.00
2471	John Caulfield, secretary	Cash advanced as per receipts	53.69
2472	John Bell	Lime and cement	12.50
2473	Duggan Bros	Blacksmithing	16.45
2474	Tusler, DeLong & Co	Clevises	1.00
2475	P. V. Dwyer & Bros	Lead pipe	48.49
2476	Scribner-Libby Co	2 urns for pumping station	7.00
2477	Abstract Clerk	Abstract	4.55
			$45,416.17

NOVEMBER, 1885.

No of Voucher.	Name.	Claim.	Amount.
2478	John Caulfield, secretary	Pay roll for October, 1886	$10,456.17
2479	Cincinnati and Newport Iron and Pipe Co., Newport, Kentucky	Estimate No 10, pipe & specials	2,957.87
2480	A. W. Morgan, Buffalo, N. Y.	Service boxes	200.76
2481	Henry R. Worthington, N. Y.	Meters	253.06
2482	John Curran	Estimate No. 7 & final drayage	241.50
2483	R. D. Wood & Co., Phil'a, Pa.	Valves, etc	50.25
2484	St. Paul Book and Stationery Co	Stationery	4.96
2485	Slater & Riley	Blacksmithing	2.75
2486	J. De Graw & Sons	Lumber	98
2487	Farwell, Ozmun & Jackson	Tools	4.53
2488	Richard Price	Veterinary Services	5.75
2489	J. W. Cunningham & Co	1000 No. 6 envelopes	3.00
2490	Robert Seeger	Gasoline	4.50
2491	John Martin Lumber Co	Fence posts	13.00
2492	E. McNamee	Feed	11.45
2493	Prendergast Bros	Fire-pot repairs, furnace	37.70
2494	J. H. Schurmeier	Setting tires pipe wagon	10.00
2495	Robinson & Cary	Valves, bolts, etc	4.30
2496	H. P. Rugg & Co	Pipe fittings	73.93
2497	St. Paul Rubber Co	Rubber cloth	3.00
2498	W. F. Bailey & Co	Repairs	109.33
2499	W. F Bailey & Co	Brass goods	92.81
2500	Geo. J. Mitsch & Co	Oil, glass and rosin	6.68
2501	C. Collins	Blacksmithing	78.55
2502	Duggan Bros	Blacksmithing	51.90
2503	M. Fielding	Repaving	82.56
2504	P. H. Kelly Mercantile Co	Powder, fuse and oil	90.44
2505	Charles Friend	Harness, fixtures, repairs	5.20
2506	Pioneer Press Co	Blank Books, etc	18.00
2507	K. P. Cullen	Team for surveyors	12.00
2508	John Bell	Cement	12.60
2509	Thomas Brennan	Lumber	6.40
2510	Donaldson, Ogden & Co	Lantern fixtures	1.80
2511	Hartford Steam Boiler Ins. Co	Insurance on boilers	50.00
2512	Adam Decker	Fence wire, etc	23.44
2513	Miles Bros	1 money till	4.00
2514	Griggs & Foster	Fuel	29.00
2515	John Caulfield, Sec'y	Cash advanced for freight, etc.	37.84
2516	Geo. Reis, City Treasurer	Int. due Dec. 1, 1886	7,017.50
			$22,069.51
		Total	$310,326.31

METERS.

The total number of meters in use at the present time is 200, an increase of 34, the sizes and kind of which are as follows:

KIND.	SIZES.								Total.
	½	⅝	¾	1	1½	2	3	4	
Worthington		2	16	14	9	2	2		45
Union (rotary)		9	8	9	6	1	1		34
Union (piston)	1	15	10	11	1				38
Crown		1	4	6	9	1		1	22
Empire	15		27	13		5			60
Self register on elevator								1	1
Total	16	27	65	53	25	9	3	2	200

SHUTTING OFF AND TURNING ON WATER, FROM DECEMBER 1, 1885, TO DECEMBER 1, 1886.

	High Service.	Low Service.	Total.
Shut off for repairs	44	187	231
Shut off for non-payment	41	159	200
Shut off for premises vacant	42	199	241
Shut off for violation of rules	2	2	4
Total	129	547	676
Turned on—old services	95	505	600
Turned on—new services	676	368	1,044
Turned on for builders		64	64
Total	771	937	1,708

Total shut off and turn on for year ending December 1, 1886 2,384
" " " " " " " " " " 1885 2,311
" " " " " " " " " " 1884 1,014

SAMPLES.	Total Solids.	Volatile Matter.	Chlorine.	Oxygen used by Oxid Matte	HARDNESS.	
					Total.	Permanent.
Vadnais lake, at gate house	150. 8.762	40. 2.337	2. .117	3.129	8.5	3.5
Vadnais lake, from pumping station, high service	200. 11.683	32. 1.869	2. .117	2.009	12.	3.
Vadnais lake, from office, low service	200. 11.683	36. 2.103	2. .117	2.357	12.5	2.
Vadnais lake, average	184. 10.709	36. 2.103	2. .117	2.498	11.0	3.0
Phalen lake, 200 feet from shore	164. 9.580	44. 2.570	2. .117	3.709	11.	2.5
Mississippi river, at St. Paul, above the outlet of Sherman street sewer	340. 19.861	72. 4.206	7. .409	3.864	17.	2.
Mississippi river, at Red Wing	214. 12.500	50. 2.921	5. .292	3.864	12.	4.2
Artesian well, Sixth ward, St. Paul	260. 15.188	40. 2.337	3. .175	.464	15.	2.
Average, artesian wells of Mississippi valley in Minnesota	17.73	3.26	.856	.0329	15.4	4.4

NOTE:—The upper line of figures represents parts in 1,000,000. The lower, grains in a gallon.

EXTRACT FROM REPORT OF DR. C. N. HEWITT, SEC'Y STATE BOARD OF HEALTH.

"Lake Phalen holds its own as yet. The difference in hardness between Vadnais at gate house and high and low service is a curious feature, which I am not yet prepared to explain. The amount of oxygen used by organic matter is quite large in all the lake waters, but being of vegetable origin is not harmful.

The analysis of the river water at St. Paul, loaded with offensive material, and at Red Wing (where it has had time to partially clear by sedimentation and oxidization and by admixture with the water of the St. Croix) is worth your notice.

The artesian well water compares very favorablyi with the average of other wells in the Mississippi valley examined in our Laboratory. It is a first rate hard water, and I see no danger to its purity from unfavorable surroundings, *so long as it flows.*"

SUPERINTENDENT'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
St. Paul, December 1st, 1886.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN: In obedience to law I present to your Honorable Board my Fifth Annual Report, which will show you the present condition of the Works; the amount done during the past season, also the recommendations for next season, which amounts to 18 miles and 1894 feet.

On account of the old pipe being damaged by frost, grading of street and sewer connections, I had to re-lay Eighth street from 150 feet east of Jackson to Minnesota, Minnesota from Seventh to Eighth, Broadway from Seventh to Ninth, Eleventh from Broadway to Olive, Olive from Eleventh to Grove, Fourth from Sibley to Jackson; also, Tenth from Cedar to Fort street with a 20 inch main, the old 6 inch not being sufficient to give a proper supply. It will be necessary to continue the 20 inch line on Fort street to the Seven Corners, to give additional supply to that quarter of the city. All the works are in good repair for the winter.

The repairs of hydrants were large. I had to change the location of 25, on account of the grading and paving of streets. I had only one case of hydrant being frozen during last winter. The system I am now using for protecting hydrants from frost is proving very successful. I placed one hundred and eighty-two fire hydrants in service this season, making a total of six hundred and seventy-three fire hydrants in service; and, for street sprinkling, twenty-nine were placed in service. There are now eighty-one for street sprinkling located through the different streets of the city.

On low service, I laid 5333 feet of 4 inch, 18030 feet of 6 inch, 3072 feet of 12 inch, 3040 feet of 16 inch, and 1415 feet of 20 inch pipe; making a total of four miles and 4490 feet.

On high service, I laid 1591 feet of 4 inch pipe, 52251 feet of 6 inch, 11272 feet of 12 inch, and 2370 of 16 inch; making a total of twelve miles and 4124 feet.

On high and low service, this season, there were eighteen miles and 3334 feet laid. With the alterations of mains, we have now eighty-five miles and 5188 feet.

We have put in one thousand and eight service pipes, 369 on low service, and 639 on high; making a total of 4947 water consumers. There were 22 old service re-laid.

I am now at our winter or rock work, on Hoffman avenue and Cherry street.

There ought to be another inlet pipe put in the lake from the gate-house, to prevent it being damaged by frost the coming winter.

I will again call your attention to a low service reservoir, as being almost indispensable to enable us to have a proper supply of clean water. The risk of shutting off the water from the city for the cleaning of the conduit would be too dangerous. One fire might cause more loss to the city than the expenditure of building a reservoir.

I would recommend to be made, during the coming summer, a proper drag-hook, to rake up all weeds and rushes out of the shore of Vadnais Lake. It will beautify the lake, dispense with vegetable matter, and purify the water, which is very essential.

The changing of the names of so many streets, made it difficult for me to compile my report.

The waste of water is one of the most difficult problems with which water-works authorities have to contend. In order to show the citizens the large quantity of water that may be wasted from different sized orifices, under various pressures, I submit the following table, (which is on the next page) for their consideration. The hydrant list shows the pressure in the different parts of the city, so any person can see the waste that can take place in their locality, through the different size of orifice in a given time.

In conclusion, I return my thanks to the President, the members of the Board, and Mr. John Caulfield, Secretary, for their uniform courtesy and kindness to me.

I have the honor to remain, Gentlemen,

Respectfully yours,

J. B. OVERTON,

Superintendent.

TABLE SHOWING HOW CITY WATER MAY BE WASTED.

GALLONS AND HUNDREDS OF GALLONS OF WATER THAT WILL BE DISCHARGED PER MINUTE THROUGH VARIOUS-SIZED ORIFICES.

Head in Feet	Pressure per Square-Inch	DIAMETERS OF ORIFICES IN INCHES AND FRACTIONS OF AN INCH.													
		1-64	1-32	1-16	1/8	1/4	3/8	1/2	5/8	3/4	1	1 1/4	1 1/2	1 3/4	2
20	8.66	0.02	0.07	0.30	1.20	5.10	11.70	20.60	32.20	46.20	82.30	128.40	184.80	252.00	328.80
40	17.32	0.02	0.11	0.45	1.80	7.40	16.30	29.60	45.50	65.50	111.50	182.40	261.60	356.40	465.60
60	25.99	0.03	0.14	0.55	2.20	8.90	20.00	35.40	57.70	80.30	142.80	223.20	320.40	436.80	571.20
80	34.65	0.04	0.16	0.65	2.60	10.30	23.20	41.20	64.30	92.60	164.40	258.00	370.80	505.20	658.80
100	43.31	0.04	0.18	0.75	2.90	11.50	25.90	46.10	72.00	103.70	183.60	288.00	415.20	565.20	738.00
120	51.98	0.05	0.19	0.78	3.10	12.60	28.30	50.40	78.80	113.50	201.60	315.60	453.60	624.40	807.60
140	60.64	0.05	0.21	0.85	3.40	13.60	30.50	54.50	85.20	122.40	217.20	335.70	490.80	668.40	872.40
150	64.97	0.05	0.22	0.88	3.50	14.10	31.70	56.50	88.20	127.20	225.60	352.80	507.60	691.20	902.40
175	75.80	0.06	0.24	0.95	3.80	15.20	34.20	61.00	95.30	136.80	243.60	380.40	548.40	748.80	975.60
200	86.83	0.06	0.24	1.02	4.10	16.30	36.60	65.20	101.80	146.40	260.40	416.80	588.00	798.00	1042.80
235	101.08	0.07	0.28	1.12	4.50	17.90	41.30	71.50	137.70	185.80	285.20	445.90	642.20	871.30	1140.80

PIPE RECOMMENDED TO BE LAID IN WEST ST. PAUL DURING THE YEAR 1887.

Street.	From Street to Street.	No. of feet and size of pipe.				
		4 in	6 in.	12 in	16 in	20 in
Broadway	Third to River				500	
River	East to West Side (flexible joints)				900	
State	River to Concord				5500	
Indiana	Dakota to State			450	2400	
Chicago	Dakota to State		2800			
Isabel	Carlton to State			5100		
Concord	Isabel to Cambridge			3200		
Congress	Concord to Brown		3000			
Winnifred	Cambridge to State		1400			
Robie	Cambridge to State		1400			
Dakota	Channel to Isabel		1400			
	For hydrants	500				
		500	10000	8750	9300	

4 inch pipe..... 500
6 inch pipe.....10000
12 inch pipe..... 8750
16 inch pipe..... 9300

28550 feet or 5 and 2150|5280 miles.

PIPE RECOMMENDED TO BE LAID ON LOW SERVICE (OR GRAVITY SYSTEM) DURING THE YEAR 1887.

Street.	From Street to Street.	No. of feet and size of pipe.				
		4 in	6 in.	12 in	16 in	20 in
Fort	Seven Corners to Tenth					1600
Lee avenue	Seventh to Duke		1350			
Randolph	Seventh to View			1320		
Pennsylvania avenue	Mississippi to L'Orient		300			
St. Peter	Sixth to Seventh		325			
Sixth	St. Peter to Seventh	450				
Franklin	Sherman to Elm	400				
Minnesota	Third to Sixth	1000				
Fifth	West of Minnesota	200				
Eagle	Washington to Seven Corners		1225			
Exchange	Wabasha to St. Peter	350				
Prairie	Garfield to Western		800			
Preble	Beaumont to Minnehaha		500			
Minnehaha	Preble to Payne		400			
West Seventh	Lee avenue to Tuscarora				500	
Duke	Cascade to Seventh		1000			
Western avenue	Short Line R. R. to St. Clair		450			
	Hydrants	400				
		2800	5250	1320	500	1600

4 inch pipe..... 2800
6 inch pipe..... 5250
12 inch pipe..... 1320
16 inch pipe..... 500
20 inch pipe..... 1600

11470 feet or 2 and 910|5280 miles.

PIPE RECOMMENDED TO BE LAID ON HIGH SERVICE (ST. ANTHONY HILL A DAYTON BLUFF).

Street.	From Street to Street.	No. Feet and Size Pi			
		4 in.	6 in.	12 in.	20
Sherburne avenue	Cedar to Rice		1300		
Martin	Summit Place to Western		1900		
Martin	Arundel to Kent		1300		
Mackubin	Rondo to Fuller		1000		
Mackubin	University to Ellen		300		
Dale	Goodrich to Lincoln			400	
Goodrich	East of Dale 400 feet		800		
Grotto	Lincoln to Marshall		3550		
Robert	University to Jackson		550		
St. Anthony	Summit Place to Dale		4600		
Blair	Western to Dale		2600		
Thomas	Western to Dale		2600		
East Sixth	Hoffman to Sinnen		2600		
East Fourth	Maria to Mendota		2300		
Arcade	East Seventh to Magnolia			4300	
Iglehart	Mackubin to Dale		1250		
Louis	Carroll to Fuller		1300		
Como	Rice to Western				33
Conway	Maria to Forest		2100		
Portland	Grotto to Avon		650		
Selby	Grotto to Victoria		1300		
Front	Rice to Dale			5280	
Reaney	East Seventh to Arcade		1050		
Farquier	Arcade to Weide		450		
Francis	Arcade to Cypress		1900		
Oakland	Ramsey to Western		800		
Ramsey	Oakland to Summit		1100		
Greenbrier	Seventh to Margaret			650	
Margaret	Seventh to Greenbrier		950		
Maria	Hudson to Cherry		750		
Cherry	Maria to Hoffman		600		
Hoffman	Clermont to Cherry		2100		
	Hydrants	1000			
		1000	41950	10630	33

4 inch pipe	1000
6 inch pipe	41950
12 inch pipe	10630
20 inch pipe	3336
Total on high service	56916 or 10 miles 1116 feet.
Total on low service	11470
Total on West St. Paul	28550
	96934 or 18 1894,5280 miles.

ESTIMATE OF AMOUNT AND COST OF PIPE RECOMMENDED TO BE LAID TO DECEMBER 1, 1887, ON HIGH AND LOW SERVICE.

17 5163/5280	miles street mains 2843 tons at $30.00	$ 85,290.00
	Special castings, 60 tons at $50.00	3,000.00
	Gates and boxes	5,000.00
	Fire hydrants, 200, at $55.00 set	11,000.00
Lead, 60 tons,	at $100.00, $6,000.00, hemp packing, 2 tons, at $20.00,	6,240.00
	Excavation and laying	28,000.00
	Extra for rock excavation	7,000.00
	Drayage, 300 tons at 60 cents	1,800.00
		$147,330.00
	Extra for crossing the Mississippi river	10,000.00
	Total	$157,333.00

Location, Size and Amount of Water Mains Laid from December 1, 1885, to December 1, 1886, on Low Service.

Date		Street	From Street to Street	No. of Feet and Size of Pipe				
				4 in.	6 in.	12 in.	16 in.	20 in.
March	25, 1886		Extension on Wilkin street		42			
March	31, "	Franklin	Fifth to Seventh	290				
April	5, "	Washington	Fifth to Sixth	333				
April	7, "	Franklin	Third to Fourth	257				
April	9, "	Eighth	East of Wabasha	148				
May	6, "	Robert	At Second		14			
May	6, "	Second	At Robert		18			
May	6, "	Goodhue	Seventh to Richmond		1169			
May	15, "	Sixth	Wabasha West	160				
May	18, "	Sherman	Seventh to Pleasant		886			
May	19, "	Garfield	Prairie to Goodrich		631			
May	20, "	Bradley	Crossing of Seventh		38			
May	25, "	Goodrich	Seventh to Western			1062		
June	8, "	Walnut	Exchange to Washington	982				
June	8, "	Franklin	Chestnut to Sherman	1235				
June	19, "	Prairie	Garfield to Douglas		660			
June	19, "	Banfil	Seventh to Forbes	890				
July	17, "	Tenth	Cedar to Fort					132[illegible]
July	17, "	Wabasha	At Tenth					2[illegible]
July	17, "	Fort	South of Tenth					6[illegible]
July	21, "	Olive	Olmsted to Pennsylvania		1010			
July	21, "	William	West of Olive		332			
July	23, "	Ninth	Fort to Oak		365			
July	23, "	Franklin	Sixth to Ninth	350				
July	28, "	Wakouta	Seventh to Ninth	658				
July	31, "	Kittson	Fourth to Fifth		300			
August	17, "	Webster	South of Seventh		45			
August	20, "	Fourth	Broadway to Kittson			1877		
Sept	3, "	Granite	Courtland to Mississippi		1437			
Sept.	17, "	Mississippi	York to Jessamine		2240			
Sept	17, "	Magnolia	Crossing of Mississippi		18			
Sept.	22, "	Robert	Twelfth to Fourteenth		714			
Sept	28, "	Acker	Mississippi to Courtland		1622			
Oct.	1, "	Buffalo	Genesee to Acker		626			
Oct	1, "	Genesee	Mississippi to Buffalo		792			
Oct.	4, "	Fourteenth	East of Robert		40			
Oct.	11, "	Reaney	Payne to Edgerton		610			
Oct.	11, "	Payne	Minnehaha to St P. M & O Ry		688			
Oct.	12, "	Eagle	Spring to Washington		225			
Oct	14, "	College	East of Tenth		360			
Oct.	15, "	Decatur	Bedford to Beaumont		710			
Oct.	15, "	Beaumont	Decatur to Preble		115			
Oct.	19, "	Jefferson avenue	West of Seventh			133		
Oct.	27, "	Dakota avenue	Bridge to Channel		1335			
Oct.	27, "	Fairfield	West of Dakota		60			
Oct.	27, "	Toronto	South of Seventh		35			
Oct	27, "	James	South of Seventh		60			
Oct.	27, "	Randolph	East of Seventh		35			
Oct.	27, "	Warsaw	South of Seventh		35			
Oct.	27, "	Hamilton	East of Seventh		38			
Nov.	27, "	Western avenue	St. Clair to Seventh		220			
Nov.	25, "	West Seventh	Stuhlman's Brewery to Lee av				3040	
Nov.	25, "	Armstrong	East of Seventh		35			
Nov.	25, "	Bay	South of Seventh		35			
Nov	25, "	Lee	East of Seventh		35			
				5333	18030	3072	3040	1415

Total 4 inch pipe ... 5333
Total 6 inch pipe ... 18030
Total 12 inch pipe ... 3072
Total 16 inch pipe ... 3040
Total 20 inch pipe ... 1415

30890 or 5 and 4490/5280 miles.

ATION, SIZE AND AMOUNT OF WATER MAINS LAID FROM DECEMBER 1, 1885, TO DECEMBER 1, 1886, ON ST. ANTHONY HILL.

Date.	Street.	From Street to Street.	NO. OF FEET AND SIZE OF PIPE. 4	6	12	16	20
l 20, 1886	Robert	Aurora avenue south		93			
l 29, "	Martin	Western avenue to Arundel		589			
3, "	Lincoln	Dale to Avon		1085			
3, "	Dale	Grand to Lincoln			398		
3, "	Fuller	Western to Kent		1916			
6, "	Mackubin	Fuller to University		650			
7, "	Portland	Dale to St. Albans		625			
13, "	Aurora	Western to Kent		1916			
15, "	Holly	Dale to Avon		1945			
15, "	Martin	Rice to Summit Place		670			
19, "	Central avenue	Rice to St. Peter	531				
19, "	Park avenue	North of Martin		180			
20, "	Maria	Seventh to Eighth		293			
24, "	Ashland	Dale to Avon		1943			
26, "	Eichenwold	Sixth to Seventh		505			
27, "	Sinnen	Sixth to Seventh		518			
2, "	Hague	Dale to Fisk		2171			
2, "	Selby	Dale to St. Albans		736			
4, "	Renney	Seventh to Frank		1105			
10, "	Marshall	St. Albans to Victoria			2020		
15, "	Earl	Seventh to Beech			1615		
15, "	Ross	Connection with Earl		20			
15, "	Farquier	Connection with Earl		20			
17, "	Laurel	Miller to Dale		1750			
21, "	Carroll	Kent to Dale		615			
28, "	Fuller	Rice to Western		2640			
1, "	Summit Place	Carroll to Fuller		1255			
7, "	Cedar	Sherburne to Como		650			
7, "	Viola	Jackson to Cedar		319			
9, "	Seventh	Earl to Duluth avenue				1320	
14, "	Rice	Como to M. & M. R. R.			1168		
26, "	Rondo	Rice to Western		2598			
27, "	Beech	Mendota to Seventh		455			
ust 2, "	Valley	Canada to Fairview				1050	
ust 10, "	Broadway	Fifteenth to Mt. Airy		367			
ust 12, "	East Third	Maple to Cypress		2249			
ust 12, "	Mendota	Seventh to Hudson			3290		
ust 12, "	Point Douglas	Maple to Forest		1133			
ust 12, "	Ramsey	Crossing of Summit		64			
ust 14, "	Hudson	Maple to Mendota			194		
ust 16, "	Mt. Airy	Broadway to Fairview		1386			
ust 16, "	Linden	Mt. Airy to Mt. Airy		50			
ust 17, "	Fairview	Valley to Mt. Airy		345			
ust 17, "	Hudson	At Maple		19			
ust 26, "	Fifth	At Maple		19			
ust 26, "	Viola	Rice to Cedar		1280			
ust 27, "	Maple	Seventh to Hudson		2660	6		
14, "	Margaret	Seventh to Earl		2914			
20, "	University	Arundel to Dale			1978		
30, "	Ellen	Rice to Kent		4574			
1, "	Central Park	Summit to Central avenue	585				
1, "	Central avenue	E. side Central Park to Cedar		462			
3, "	Aurora	Western to Virginia		343			
12, "	Charles	Western to Rice		2640			
14, "	Virginia	Iglehart to Nelson	475				
25, "	Oakland	Western to Lincoln		2114			
29, "	Summit	Dale to St. Albans			603		
6, "	Victoria	Marshal to Carroll		660			
	Carroll	Victoria to 150 ft. W. of Miller		800			
			1591	52251	11272	2370	

Total 4-inch pipe 1,591
Total 6-inch pipe 52,251
Total 12-inch pipe 11,272
Total 16-inch pipe 2,370

67,484 feet, or 12 and 4124-5280 miles

LOCATION, SIZE AND NO. OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1886.

Street or Avenue.	From Street to Street.	No. of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Acker	Mississippi to Courtland		1644						
Armstrong	East of Seventh		35						
Bantil	Seventh to Forbes	921							
Bay	South of Seventh		35						
Beaumont	Preble to DeSoto		976						
Becker Place	Lafayette to DeSoto		450						
Bedford	North to Minnehaha		1318						
Bradley	Seventh to North streets		1285						
Broadway	Manitoba Ry to Fifteenth	693	1716		1412		1741		
Bruno	East of Lafayette avenue		47						
Buffalo	Genesee to Acker		626						
Burr	Partridge to Farquier		2633						
Canada	Ninth to Fifteenth		2055						
Cedar	Third to Summit		272	2573		614			
Chestnut	Seventh to Washington		1235						
Colborne	Grace to Jefferson		632						
College	Cedar to Oak		1657						
Collins	Lafayette to Bedford		991						
Cooper	Ninth to Norris	986							
Dakota	Bridge to Channel		1535						
Decatur	Bedford to Beaumont		710						
De Soto	Hopkins to Farquier		425	1530					
Douglas	Seventh to Ramsey		1144						
Duke	South of Seventh		25						
Eagle	Spring to Washington		225						
Eighth	Wabasha to 110 ft. E. of Neill	4751							
Eleventh	Cedar to Olive	565	1259						
Elm	Exchange to Short Line Ry	406							
Exchange	St. Peter to Wilkin	3694							
Fairfield	West of Dakota		60						
Farquier	Payne to De Soto			1982					
Fifth	Kittson to Third	4849	1378						
Forbes	Pleasant to McBoal		1395						
Fort	Third to Tenth		1471						
Fourteenth	Canada to Robert		990						
Fourth	Kittson to Exchange		4865	1877					
Franklin	Third to Ninth	2332							
Garfield	Prairie to Goodrich		631						
Genesee	Mississippi to Buffalo		814						
Goodhue	Cleff to Richmond		2169						
Goodrich	Short Line Ry to Western		1260	1062					
Grace	Seventh to Colborne		72						
Granite	Mississippi to Courtland		1604						
Grove	Monroe to Pearl	133	1300			341			
Hamilton	East of Seventh		38						
Hopkins	De Soto to Bradley		700						
Jackson	Levee to Fifteenth	40	4479			108			
James	Crossing of Seventh		60						
Jefferson	West of Seventh			133					
Jessie	Minnehaha to Farquier		640						
John	Fourth to 150 ft. N. of Olmsted	1840	1055						
Kittson	Fourth to Seventh		846						
Lafayette	Grove to De Soto	205		150	2070				
Lee	East of Seventh		35						
Leech	Ramsey to Goodrich		1102						
Levee	Sibley to Jackson	340							
Locust	Seventh to Grove				1025				
L'Orient	Thirteenth to Nash		400						
McBoal	Wilkin to Douglas		1281						
Magnolia	Crossing of Mississippi		18						
Market	Third to Fourth	250							
Minnehaha	Jessie to Bedford		90						
Minnesota	Third to Twelfth	2912							
Mississippi	Grove to terminal chamber		6128					16350	18
Monroe	Grove to Woodward	300							
Mt. Airy	Mississippi to L'Orient		290						
Mt. Ida	De Soto to Otsego		180						
Nash	Pine to L'Orient		680						
Neill	Seventh to Eighth	325							
Ninth	Neill to Oak	980	5173						
Norris	Canada to Temperance	761							

LOCATION, SIZE AND NO. OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1886.—*Concluded.*

Street or Avenue.	From Street to Street.	No. of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
North	Bedford to De Soto		851						
Oak	Ramsey to College		3058						
Olive	Sixth to Pennsylvania	1534	1010						
Olmsted	John to Pine		623						
Oneida	South of Seventh		36						
Otsego	Lafayette to Mt. Ida		805						
Payne	Minn'ha to C. St. P. M. & O. Ry		688						
Partridge	Bradley to De Soto	472							
Pearl	Grove to Jackson					1175			
Pine	Ninth to Williams	593	1710						
Pleasant	Sixth to Ramsey		3130						
Prairie	Garfield to Douglas		660						
Prince	Broadway to John		777						
Ramsey	Leech to Pleasant		1342						
Randolph	East of Seventh		35						
Reaney	Payne to Edgerton		610						
Richmond	South of Seventh		27						
Robert	Second to Fourteenth		4198						
Rosabel	Third to Seventh		1401						
St. Clair	East of Seventh		40						
St. Peter	Third to College		2412						
Second	East to Robert		18						
Seventh	Duluth Ry to Lee avenue	350	1072	3040	12874				
Sherman	Bluff to Pleasant		1937						
Sibley	Levee to Eighth	630	1450						
Sixth	Kittson to Pleasant	4936	1376						
Smith	Wilkin to Seventh		596						
Somerset	John to Pine	663							
Spruce	Wacouta to Cooper	400							
Temperance	Eighth to Thirteenth	1555							
Tenth	Locust to College	1839	2123			1323			
Third	Broadway to College		6797						
Thirteenth	Pine to Jackson	310	1790						
Toronto	South of Seventh		35						
Twelfth	Pine to Cedar	280				1274			
Wabashaw	Third to Summit		3336			26			
Wacouta	Third to Spruce	1288	1210						
Walnut	100 ft. S. of Ir. Pk. to Pl's't	2420							
Warsaw	South of Seventh		35						
Washington	Chestnut to Sixth	2000							
Waverley Place	Lafayette to John		340						
Webster	South of Seventh		45						
Western	St. Clair to Seventh		247						
Westminster	Waverly Place to N. P. Ry.		1072						
Wilkin	Bluff to Sherman		1196						
William	Mississippi to Olive		857						
Willius	Fifth to Seventh	550							
Yankee	East of Seventh	31							
Main Line old	Farquier to Lake Phalen				13564		7021		
		47165	113072	12947	30945	4927	8765	16350	18

Low service.

Total 4 inch pipe	47165
Total 6 inch pipe	113072
Total 12 inch pipe	12947
Total 16 inch pipe	30945
Total 20 inch pipe	4927
Total 24 inch pipe	8765
Total 30 inch pipe	16350
Total 36 inch pipe	18

234369 feet or 44 and 2049|5280

Location, Size and No. of Feet of Water Mains Laid on High Service to December 1, 1886.

Street.	From Street to Street	No. of Feet and Size of Pipe.					
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Arundel	Summit to Marshall	1239					
Ashland	Western to Avon		4583				
Aurora	Robert to Kent		2894				
Bates	Plum to Seventh			2075			
Beech	Mendota to Seventh		155				
Blair	West of Western		20				
Broadway	Thirteenth to Mt Airy		407		533		
Cannda	Fifteenth to Valley		280				
Carroll	Rice to 150 ft W of Milton		6300				
Cedar	Summit to Como		2503				
Central	Central Park E drive to Rice	531	1218				
Central Park	Summit to Central	585					
Charles	Rice to Western		2640				
College	Rice to Third		1245				
Como	Western to Dale					3336	
Dale	Lincoln to McCarron Road			906	2640	1447	9164
Dayton	Summit to Fisk		2165	4675			
Earl	Beech to Seventh			1015			
Edmund	Rice to Marion		900				
Eichhenwold	Sixth to Seventh		505				
Ellen	Rice to Kent		4574				
Fairview	Valley to Mt Airy		345				
Farrington	Summit to Carrol!		2400				
Farquier	Earl to Arcade		2592				
Fifteenth	Broadway to Jackson				1300		
Fifth street East	Maple to 340 ft W of Marin av		1438				
Floral	Grand to Summit	180					
Fourth	West of Marin		400				
Fuller	Rice to Kent		4576				
Grand	Lawton to Victoria		4215				
Grove	Seventh to Pine				2618		
Hague	Dale to Fisk		2171				
Hoffman	Sixth to Seventh		487				
Holly	Western to Avon		4585				
Hudson	Marin to Mendota		1684	194			
Iglehart	Wabasha to Mackubin		5624				
Jackson	North of Fifteenth		28				
Kent	Portland to Carroll	2201					
Laurel	Nina to Miller		5470				
Lawton	Summit to Grand		480				
Lincoln	Oakland to Avon		2840				
Linden	Mt Airy to Mt Airy		50				
Louis	Nelson to Carroll		830				
McCarron Road	Fore'd Main Pump H'se to Dale					6124	
Mackubin	Summit to University		4318				
Maple	Hudson to Seventh		2860	6			
Margaret	Earl to Seventh		2014				
Marin	Hudson to Eighth		2048				
Marshall	Western to Victoria		2640	2640			
Martin	Central to Arundel		1924				
Mendota	Hudson to Farquier		672	3290			
Mt. Airy	Broadway to Fairview		1386				
Nelson	Summit to Western		2422				
Neurer	West of Western		20				
Nina	Summit to Selby		800				
Oakland	Western to Summit		2943				
Park avenue	Martin to University		270				
Park Place	Park	560					
Pine	Grove to Thirteenth				387		
Point Douglas	Forrest to Maple		1133				
Portland	Western to St Albans		3265				
Ramsey	Crossing of Summit		64				
Rearney	Frank to Seventh		1105				
Rice	College to St P. M. & M. Ry		543	1213	2436	1154	
Robert	University avenue south		171				
Rondo	Rice to Mackubin		3052				
Ross	Earl to Seventh		520				
St Anthony	West of Western		20				
St. Peter	College to University		2676				

LOCATION, SIZE AND NO. OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1886.—*Concluded.*

Street.	From Street to Street.	No. of Feet and Size of Pipe.					
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Selby	Summit to St. Albans		5421				
Seventh East	Duluth avenue to Grove				8444		
Sherburne	East of Cedar	400					
Sinnen	Sixth to Seventh		518				
Suction main	Pump house to terminal cham						907
Summit	Cedar to St. Albans		4386	4800			
Summit Place	Nelson to Fuller		2115				
Third East	Cypress to Maria		3314				
Third West	College to Summit		567				
Thirteenth	Pine to Broadway				778		
Thomas	West of Western		20				
Fifton	Wabasha to Rice		1278				
Topping	West of Como		72				
University	Jackson to Dale			5238	2294		
Valley	Broadway to Fairview				1590		
Viola	Jackson to Rice		1609				
Victoria	Marshall to Carroll		660				
Virginia	Summit to Iglehart	475	1827				
Wabasha	Summit to 25 ft. N. of Central	50	842				
Western	Summit to Como			1775	6285		
		6521	132286	29325	29355	12061	10071

High Service.

4 inch pipe	6521
6 inch pipe	132286
12 inch pipe	29325
16 inch pipe	29355
20 inch pipe	12061
24 inch pipe	10071

219619 feet, or 41 and 3139/5280 miles.

Total pipe laid on High and Low Service to Dec. 1, 1886:

High service	219619
Low service	234369

453988 feet, or 85 and 5188/5280 miles.

LIST OF HYDRANTS.

No.	Location.	Service	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
1	Woodward and Monroe streets	Low	Holly	4	36
2	Grove and Lafayette avenue	"	Mathew	6	36
3	Westminster and Waverly streets	"	do	6	36
4	Westminster and Herkimer avenues	"	do	6	37
5	Grove and Olive streets	"	do	6	38
6	John and Somerset street	"	Holly	4	36
7	Olive and Somerset streets	"	Mathew	4	36
8	Pine and Thirteenth streets	"	do	6	38
9	Thirteenth and Mississippi streets	"	do	6	38
10	Grove and Mississippi streets	"	do	20	37
11	Pine and Eleventh streets	"	do	4	37
12	Canada and Pearl streets	"	do	6	35
13	Canada and Spruce streets	"	do	6	36
14	Pearl, in middle of block	"	do	20	34
15	Jackson and Pearl streets	"	do	6	30
16	Robert and Twelfth streets	"	do	6	37
17	Robert and Eleventh streets	"	do	6	35
18	Minnesota and E[illegible] streets	"	Holly	6	36
19	Eleventh and [illegible]	"	Mathew	6	33
20	College avenue and Wabasha street	"	do	6	26
21	Wabasha and Tenth streets	"	do	6	35
22	St. Peter and Tenth streets	"	do	6	33
23	St. Peter street and College avenue	High	do	6	21
24	St. Peter street and Summit avenue	"	do	6	20
25	Ten[illegible] and College avenue	Low	Holly	6	26
26	Tenth street, between St. Peter and Fort streets	"	Mathew	20	35
27	St. Peter and Exchange streets	"	do	6	35
28	Wabasha and Exchange streets	"	do	6	35
29	St. Peter and Ninth streets	"	do	6	29
30	Wabasha and Ninth streets	"	do	6	30
31	Jackson and Ninth streets	"	do	6	37
32	Ninth and Cooper streets	"	do	6	39
33	Ninth and Canada streets	"	do	6	40
34	Ninth and Pine streets	"	Holly	6	41
35	Ninth and John streets	"	do	6	41
36	Ninth and Locust streets	"	Mathew	6	42
37	Eighth and Neill streets	"	Holly	4	45
38	Fifth and Locust streets	"	Mathew	6	34
39	Eighth and Olive streets	"	do	4	43
40	Broadway and Eighth streets	"	do	6	42
41	Eighth and Wacouta streets	"	Holly	4	41
42	Jackson and Eighth streets	"	Mathew	6	40
43	Robert and Eighth streets	"	do	6	37
44	Burr and Partridge streets	"	Holly	6	33
45	Burr and Hopkins streets	"	do	6	29
46	Desoto and Hopkins streets	"	Mathew	6	30
47	Third and Oak streets	"	do	6	29
48	T[illegible] and Pleasant avenue	"	do	6	25
49	College avenue and Third street	High	do	6	82
50	Exchange and Sherman street	Low	Holly	4	35
51	Walnut and Exchange streets	"	do	4	36
52	Sherman and Seventh street	"	Mathew	6	34
53	Seventh and Walnut streets	"	Holly	12	37
54	Chestnut and Seventh streets	"	Mathew	6	35
55	Fort and Third streets	"	do	6	32
56	Seven Corners	"	do	12	32
57	Seventh, back of Winslow	"	do	12	31
58	Seventh and Fifth streets	"	do	12	30
59	Seventh and Franklin streets	"	do	12	30
60	Seventh and Sixth streets	"	do	12	31
61	Seventh and St. Peter streets	"	Holly	12	31
62	Seventh and Wabasha streets	"	do	16	32
63	Cedar and Seventh streets	"	Mathew	12	38
64	Seventh and Minnesota streets	"	do	16	40
65	Seventh and Robert streets	"	do	16	41
66	Jackson and Seventh streets	"	do	6	42
67	Seventh and Sibley streets	"	do	16	43
68	Seventh and Wacouta streets	"	do	16	42
69	Seventh and Rosabel streets	"	do	16	41

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure of Hydrant.
70	Broadway and Seventh streets	Low	Mathew	16	41
71	Seventh and Pine streets	"	do	16	40
72	Seventh and Olive streets	"	do	16	41
73	Seventh and John streets	"	do	16	43
74	Seventh and Locust streets	"	do	16	44
75	Seventh and Neill streets	"	do	6	48
76	Willius and Sixth streets	"	do	4	48
77	Sixth and Pine streets	"	do	4	40
78	Jackson and Sixth streets	"	do	6	45
79	Robert and Sixth streets	"	do	6	44
80	Sixth and Minnesota streets	"	do	4	42
81	Sixth and Wabasha streets	"	do	6	30
82	Fifth and Washington streets	"	do	4	30
83	Fifth and Wabasha streets	"	do	6	28
84	Fifth and Cedar streets	"	do	4	41
85	Fifth and Minnesota streets	"	do	4	43
86	Robert and Fifth streets	"	do	6	44
87	Jackson and Fifth streets	"	do	6	46
88	Fourth and Sibley streets	"	do	6	52
89	Jackson and Fourth streets, southeast corner	"	do	6	48
90	Fourth and Robert streets	"	do	6	44
91	Fourth and Minnesota streets	"	do	6	42
92	Fourth and Wabasha streets	"	do	6	28
93	Washington and Fourth streets	"	do	4	32
94	Third and Exchange streets	"	do	6	32
95	Third street, between Exchange and Franklin	"	do	6	32
96	Third and Franklin streets	"	do	6	32
97	Third and Washington streets	"	do	6	32
98	Third and Market streets	"	do	6	30
99	Washington and Eagle streets	"	do	4	62
100	Third and St. Peter streets	"	do	6	30
101	Wabasha and Third streets	"	do	6	28
102	Cedar and Third streets	"	do	12	30
103	Third and Minnesota streets	"	do	6	40
104	Third and Robert streets	"	do	6	45
105	Third and Jackson streets	"	do	6	52
106	Sibley and Third streets	"	do	6	60
107	Jackson street and levee	"	do	6	66
108	Jackson and Tenth streets	"	Holly	6	32
109	Jackson and Eleventh streets	"	do	6	30
110	Sibley street and levee	"	Mathew	4	66
111	St. Peter and Fifth streets	"	do	6	30
112	Ninth and Robert streets	"	Holly	6	33
113	Tenth and Wacouta streets	"	Mathew	4	38
114	Mississippi and Nash streets	"	do	6	32
115	Broadway and Twelfth streets	"	do	6	37
116	Broadway and Tenth streets	"	do	6	39
117	Elm and Franklin streets	"	do	4	32
118	Ninth and Cedar streets	"	do	6	32
119	Fourth and St. Peter streets	"	do	6	30
120	Sixth and Cedar streets	"	do	4	40
121	Fourth and Franklin streets	"	do	6	30
122	Seventh and Leech streets	"	do	12	30
123	Grove and John streets	"	do	6	38
124	Grove and Pine streets	"	do	6	39
125	Canada and Tenth streets	"	do	6	38
126	Ninth and Wacouta streets	"	do	6	40
127	Eighth and Temperance streets	"	do	4	41
128	Seventh and Willius streets	"	do	6	47
129	Seventh and Kittson streets	"	do	6	50
130	Ramsey and Leech streets	"	do	6	32
131	Collins street and Lafayette avenue	"	do	6	18
132	Sibley and Fifth streets	"	do	6	45
133	Willius and Fifth streets	"	do	4	55
134	Eighth and Willius streets	"	Holly	4	44
135	Cooper and Tenth streets	"	do	4	38
136	Pleasant avenue, Third and Chestnut streets	"	do	6	27
137	Pleasant avenue and Chestnut street	"	do	6	28
138	Pleasant avenue and Walnut street	"	do	6	28

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
139	Oak street, between Third and Chestnut streets	"	Mathew	6	30
140	Fort street, 150 feet south of Tenth street	"	Holly	6	25
141	Fort and Ninth street	"	do	6	27
142	Fort and Sixth streets	"	do	6	29
143	Fort and Fifth streets	"	do	6	31
144	Canada and Thirteenth streets	"	Mathew	6	36
145	Thirteenth street, bet Canada and Temperance sts.	"	do	6	36
146	Thirteenth street, at head of Temperance street	"	do	6	34
147	Mississippi and Mt. Airy	"	do	6	30
148	Mississippi and Glencoe streets	"	do	6	25
149	Mississippi st., 200 ft. south of Pennsylvania avenue	"	do	6	24
150	Mississippi street and Pennsylvania avenue	"	Holly	6	22
151	Pine and Nash streets	"	do	6	36
152	Olmsted and Pine streets	"	Mathew	6	36
153	Olmsted and Olive streets	"	do	6	37
154	Olmsted and John streets	"	do	6	37
155	Ninth and Exchange streets	"	Holly	6	29
156	Ninth and Franklin streets	"	Mathew	6	30
157	Wabasha street and Summit avenue	"	do	6	17
158	Robert and Tenth streets	"	Holly	6	26
159	Canada and Norris streets	"	Mathew	6	38
160	Norris and Cooper streets	"	Holly	4	38
161	Spruce and W[illegible]reets	"	do	4	38
162	Spruce street, at head of Cooper street	"	do	4	38
163	College avenue, 300 feet west of St. Peter street	"	do	6	20
164	Fourth and Wacouta streets	"	Mathew	6	56
165	Sibley and Fifth streets	"	do	6	48
166	Walnut and Oak streets	"	do	4	33
167	Fourth and Rosabel streets	"	do	6	58
168	South side of Third street, on Broadway at railroad	"	do	4	66
169	Third and Broadway streets	"	do	6	65
170	Third and Rosabel streets	"	do	6	64
171	Third and Wacouta streets, northwest corner	"	do	6	63
172	Rice street and Summit avenue	High	do	6	85
173	Fourth and Market streets	Low	do	6	30
174	Collins and Bedford streets	"	Holly	6	20
175	Burr and Collins streets	"	Mathew	6	12
176	Tenth and Pine streets	"	Holly	6	40
177	Tenth and Olive streets	"	do	6	40
178	Tenth and John streets	"	do	6	40
179	Fourteenth and Canada streets	"	Mathew	6	33
180	Fourteenth street, between Canada and Jackson sts.	"	Holly	6	35
181	Partridge and Bradley streets	"	do	4	30
182	Fourth and Broadway streets	"	Mathew	6	61
183	Exchange and Sixth streets	"	Holly	4	30
184	North and Burr streets	"	do	6	16
185	North and Desoto streets	"	do	6	18
186	Rosabel and Fifth streets	"	Mathew	6	52
187	Rosabel and Sixth streets	"	Holly	6	46
188	Pleasant avenue and Sherman street	"	do	6	30
189	Fourth and Jackson street, northwest corner	"	Mathew	6	48
190	John and Fourth streets	"	do	6	62
191	John and Fifth streets	"	do	6	53
192	John and Sixth streets	"	do	6	45
193	Bruno street and Lafayette avenue	"	do	6	40
194	Canada and Fifteenth streets	"	do	6	27
195	Becker [illegible]reet and Lafayette avenue	"	do	6	25
196	Pleasant avenue and Sixth street	"	do	6	22
197	Jackson and Thirteenth streets	"	do	6	30
198	Jackson and Fourteenth streets	"	do	6	27
199	Wilkin and McBoal streets	"	do	6	32
200	Wacouta and Third streets, southeast corner	"	do	6	63
201	McBoal and Leech streets	"	do	6	32
202	Wacouta and Sixth streets	"	do	6	45
203	Wacouta and Fifth streets	"	do	6	51
204	Fifth and Broadway streets	"	do	4	54
205	Sixth and Broadway streets	"	do	4	47
206	Tenth and Minnesota streets	"	do	6	26
207	Tenth and Cedar streets, northeast corner	"	do	6	26

LIST OF HYDRANTS—(Continued).

Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
Jackson and Fifteenth streets	"	Mathew	6	20
Cedar and Eighth streets	"	do	12	36
Cedar and Exchange streets	"	do	12	28
Ninth and Minnesota streets	"	do	6	33
Wilkin and Smith streets	"	do	6	34
Fifth and Neill streets	"	do	6	56
Kittson and Fifth streets	"	do	6	57
Kittson and Sixth streets	"	do	6	53
Smith and Neill streets	"	do	4	52
Otsego and Mississippi	"	do	6	8
Bradley street and Woodward avenue	"	do	6	32
Bradley and North streets	"	do	6	27
Hopkins and Bradley streets	"	do	6	28
Oak and Chestnut streets	"	do	6	21
Bedford and Beaumont streets	"	do	6	15
Bedford and Minnehaha streets	"	do	6	12
Forbes street and Eastern avenue	"	do	6	31
Forbes and Ramsey streets	"	do	6	32
Forbes and Smith streets	"	do	6	31
Fourth and Cedar streets	"	do	6	35
Eighth and Minnesota street	"	do	4	37
Beaumont and Bradley street	"	do	6	12
Beaumont and Desoto streets	"	do	6	12
Burr and Beaumont street	"	do	6	12
Burr and Minnehaha streets	"	do	6	8
Burr and Farquier	"	do	6	10
Forbes and Seventh streets	"	do	6	30
Fourth and Pine streets	"	do	12	60
Fourth and Olive streets	"	do	12	62
Smith and Seventh streets	"	do	6	31
Fourth and Exchange streets	"	do	6	32
McBoal and Seventh streets	"	do	6	30
St. Peter and Sixth streets	"	do	6	30
Prince and Pine streets	"	do	6	64
Prince and Olive streets	"	do	6	65
Prince and John streets	"	do	6	65
Mt. Airy and L'Orient streets	"	do	6	20
Oak and Fifth streets	"	do	6	29
Oak and Sixth streets	"	do	6	26
Oak street and College avenue	"	do	6	18
Douglas and Seventh streets	"	do	6	31
Goodrich avenue and Seventh streets	"	do	6	31
Goodrich avenue and Forbes street	"	do	6	35
Goodrich avenue and Leech street	"	do	6	36
Acker and Mississippi streets	"	do	6	20
Genesee and Mississippi streets	"	do	6	23
Granite and Mississippi streets	"	do	6	25
Second and Robert streets	"	do	6	53
Pleasant avenue and Ramsey street	"	do	6	29
Ramsey street, at head of Douglas street	"	do	6	32
Sherman and Franklin streets	"	do	6	33
Chestnut and Exchange streets	"	do	6	45
Exchange and Eagle	"	do	4	46
William and Pine streets	"	do	6	16
Pine street, 200 feet south of William street	"	do	6	15
Topping street and Western avenue	High	do	6	72
Neurer street and Western avenue	"	do	6	71
Blair street and Western avenue	"	do	6	73
Thomas street and Western avenue	"	do	6	72
University and Western avenues	"	do	12	73
Aurora and Western avenues	"	do	6	74
Fuller street and Western avenue	"	do	6	70
Martin street and Western avenue	"	do	6	67
St. Anthony and Western avenue	"	do	6	70
Rondo street and Western avenue	"	do	6	73
Carroll street and Western avenue	"	do	6	67
Iglehart street and Western avenue	"	do	6	55
Marshall and Western avenues	"	do	6	46
Dayton and Western avenues	"	do	12	45

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe	Pressure at Hydrant.
277	Western and Selby avenues	High	Mathew	12	45
278	Western and Laurel avenues	"	do	12	46
279	Western and Ashland avenues	"	do	12	46
280	Western and Holly avenues	"	do	12	47
281	Western and Portland avenues	"	do	12	47
282	Summit and Portland avenues	"	do	12	47
283	Summit avenue and Arundel street	"	do	12	45
284	Summit avenue and Mackubin street	"	do	12	45
285	Summit avenue and Kent street	"	do	12	49
286	Summit avenue, 100 feet west of Oakland avenue	"	do	12	50
287	Holly avenue and Dale street	"	do	6	50
288	Holly avenue and Kent street	"	do	6	48
289	Holly avenue and Mackubin street	"	do	6	44
290	Holly avenue and Arundel street	"	do	6	45
291	Ashland avenue and Arundel street	"	do	6	45
292	Ashland avenue and Mackubin street	"	do	6	43
293	Ashland avenue and Kent street	"	do	6	45
294	Ashland avenue and Dale street	"	do	6	50
295	Laurel avenue and Dale street, northeast corner	"	do	6	47
296	Laurel avenue and Kent street	"	do	6	43
297	Laurel avenue and Mackubin street, northwest corner	"	do	6	42
298	Laurel avenue and Arundel street	"	do	6	42
299	Dayton avenue and Dale street	"	do	12	42
300	Dayton avenue and Kent street	"	do	12	42
301	Dayton avenue and Mackubin street	"	do	12	42
302	Dayton avenue and Arundel street	"	do	12	44
303	Dayton and Virginia avenues	"	do	12	44
304	Dayton and Farrington avenues	"	do	12	41
305	Dayton avenue, between Summit and Farrington	"	do	12	55
306	Summit and Dayton avenues	"	do	6	58
307	Summit and Selby avenues	"	do	6	50
308	Summit avenue, at head of Walnut street	"	do	6	51
309	Summit and Nina avenues	"	do	6	45
310	Summit and Farrington avenues	"	do	6	42
311	Summit and Virginia avenues	"	do	6	45
312	Farrington and Laurel avenues	"	do	6	46
313	Farrington and Selby avenues	"	do	6	44
314	Selby avenue, at head of Nina avenue	"	do	6	44
315	Nina and Laurel avenues	"	do	6	45
316	Westminster street, 100 feet south of N. P. tunnel	Low	do	6	33
317	Thirteenth and Broadway streets	"	do	6	36
318	Temperance and Norris streets	"	do	4	35
319	Banfil and Seventh streets	"	do	4	31
320	Goodhue and Seventh streets	"	do	6	31
321	Yankee and Seventh streets	"	do	4	31
322	Western avenue and Seventh street	"	do	6	31
323	St. Clair and Seventh streets	"	do	6	31
324	Richmond and Seventh streets	"	do	6	31
325	Colborne and Seventh streets	"	do	16	32
326	Chestnut and Franklin streets	"	do	6	52
327	Twelfth and Jackson streets	"	do	20	29
328	Twelfth and Minnesota streets	"	do	20	27
329	Twelfth and Cedar streets	"	do	20	24
330	Cedar street and Summit avenue	"	do	6	22
331	Chestnut and Washington streets	"	do	6	60
332	Laurel and Virginia avenue	High	do	6	45
333	Selby and Virginia avenues	"	do	6	45
334	Mackubin street and Laurel avenue, southwest corner	"	do	6	42
335	Portland avenue and Arundel street	"	do	6	44
336	Portland avenue and Mackubin street	"	do	6	41
337	Portland avenue and Kent street	"	do	6	45
338	Portland avenue and Dale street	"	do	6	45
339	Selby avenue and Arundel street	"	do	6	45
340	Selby avenue and Mackubin street	"	do	6	44
341	Selby avenue and Kent street	"	do	6	44
342	Selby avenue and Dale street	"	do	6	45
343	Carroll and Arundel streets	"	do	6	54
344	Carroll and Mackubin streets	"	do	6	51
345	Carroll and Kent streets	"	do	6	40

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe	Pressure at Hydrant.
346	Kent and Iglehart	Low	Mathews	4	56
347	Marshall and Dale	"	do	6	44
348	Marshall and Kent	"	do	6	42
349	Marshall and Mackubin	"	do	6	45
350	Rondo and Arundel	"	do	6	69
351	Rondo and Mackubin	"	do	6	60
352	Iglehart and Arundel	"	do	6	55
353	Iglehart and Mackubin	"	do	6	55
354	Marshall and Arundel	"	do	6	45
355	McBoal and Douglas	Low	do	6	30
356	Douglas and Prairie	"	do	6	30
357	Summit at head of Third	High	do	12	60
358	Summit and Nelson	"	do	12	62
359	College and Sixth	"	do	6	80
360	Nelson and Virginia	"	do	6	44
361	Nelson and Farrington	"	do	6	44
362	Nelson and Louis	"	do	6	54
363	Nelson and Summit Place	"	do	6	59
364	Carroll and Virginia	"	do	6	69
365	Carroll and Virginia	"	do	6	70
366	Carroll and Louis	"	do	6	72
367	Carroll and Summit Place	"	do	6	79
368	Carroll and Ravoux	"	do	6	82
369	Park Place Park	"	do	4	80
370	Iglehart and Virginia	"	do	6	60
371	Iglehart and Farrington	"	do	6	58
372	Iglehart and Louis	"	do	6	65
373	Douglas and Lisbon	Low	do	6	32
374	Iglehart and St. Peter	High	do	6	78
375	Iglehart and Wabasha	"	do	6	84
376	Iglehart and Summit	"	do	6	67
377	Iglehart and Ravoux	"	do	6	77
378	Iglehart and Rice	"	do	6	80
379	Rice and Rondo	"	do	16	87
380	Rice and St. Anthony	"	do	16	75
381	Rice and Martin	"	do	16	72
382	Rice and Fuller	"	do	16	74
383	Rice and Aurora	"	do	16	74
384	Rice and University	"	do	20	73
385	Rice and Ellen	"	do	20	74
386	Rice and Charles	"	do	20	74
387	Rice and Edmund	"	do	20	75
388	Rice and Como	"	do	12	74
389	Tilton and St. Peter	"	do	6	74
390	Oak and Ramsey	Low	do	6	32
391	St. Peter and Martin	High	do	6	73
392	Martin and Park avenue	"	do	6	74
393	Central and Wabasha	"	do	6	77
394	Tilton and Wabasha	"	do	6	80
395	Central and Cedar	"	do	6	72
396	Aurora and Cedar	"	do	6	64
397	Aurora and Robert	"	do	6	76
398	Oak and Sherman	Low	do	6	33
399	Bradley 75 feet north of Seventh	"	do	6	33
400	Broadway and Fourteenth	"	do	4	35
401	Summit and Dale	High	do	12	45
402	Seventh and Brook	Low	do	6	48
403	Tenth and Cedar, northwest corner	"	do	20	26
404	Grand and Lawton	High	do	6	47
405	Grand and Floral	"	do	6	44
406	Grand and Oakland	"	do	6	56
407	Grand and Dale	"	do	6	51
408	Grand and St. Albans	"	do	6	50
409	Valley and Broadway	"	do	16	100
410	Grand and Grotto	"	do	6	46
411	Grand and Avon	"	do	6	44
412	Grand and Victoria	"	do	6	44
413	University and Marion	"	do	12	78
414	University and Gaultier	"	do	12	76

LIST OF HYDRANTS—(Continued).

No.	Location	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
415	University and Farrington	High	Mathews	12	76
416	University and Virginia	"	do	12	76
417	Marshall and St. Albans	"	do	12	48
418	University and Arundel	"	do	12	73
419	Dayton and St. Albans	"	do	6	46
420	Dayton and Grotto	"	do	6	45
421	Dayton and Milton	"	do	6	44
422	Dayton and Fisk	"	do	6	46
423	St. Peter and Aurora	"	do	6	70
424	St. Peter and University	"	do	6	68
425	Park and University	"	do	6	67
426	Cedar and University	"	do	6	58
427	Cedar and Sherburne	"	do	6	50
428	Sherburne, 350 feet east of Cedar	"	do	4	52
429	Hoffman and Seventh	"	do	6	105
430	Fourth, 400 feet west of Maria	"	do	6	95
431	Maria and Seventh	"	do	6	93
432	Maria and Sixth	"	do	6	92
433	Maria and Fifth	"	do	6	93
434	Maria and Fourth	"	do	6	95
435	Maria and Third	"	do	6	97
436	Maria and Conway	"	do	6	98
437	Maria and Ravine	"	do	6	99
438	Maria and Euclid	"	do	6	100
439	Maria and Hudson	"	do	6	96
440	Bates and Plum	"	do	12	82
441	Bates and Hudson	"	do	12	81
442	Bates and Euclid	"	do	12	79
443	Bates and Ravine	"	do	12	77
444	Bates and Conway	"	do	12	76
445	Bates and Third	"	do	12	80
446	Bates and Fourth	"	do	12	75
447	Bates and Fifth	"	do	12	78
448	Bates and Sixth	"	do	12	72
449	Bates and Seventh	"	do	12	78
450	Fifth and Maple	"	do	6	65
451	Third and Maple	"	do	6	68
452	Hudson and Maple	"	do	6	68
453	Valley, at head of Canada	"	do	16	90
454	Seventh and Maple	"	do	16	62
455	Seventh and Hope	"	do	16	59
456	Seventh and Margaret	"	do	16	60
457	Seventh and Beech	"	do	16	60
458	Goodhue and Dousman	Low	do	6	36
459	Goodhue and Cleff	"	do	6	35
460	Grace and Colborne	"	do	6	32
461	Colborne and Jefferson	"	do	6	33
462	Duke and Seventh	"	do	6	32
463	Seventh and Minnehaha	High	do	16	73
464	Seventh and Beaney	"	do	16	70
465	Seventh and Forest	"	do	16	69
466	Nash and L'Orient	Low	do	6	35
467	Jessie and Farquier	"	do	6	12
468	Seventh and Jefferson	"	do	16	33
469	Seventh and Farquier	High	do	16	72
470	Seventh and Cypress	"	do	16	79
471	Seventh and Ross	"	do	16	80
472	Seventh and Earl	"	do	16	83
473	Ross and Earl	"	do	6	80
474	Edmund and Marion	"	do	6	76
475	Farquier and Cypress	"	do	6	76
476	Farquier and Earl	"	do	6	75
477	Farquier and Payne	Low	do	12	6
478	Farquier and Edgerton	"	do	13	8
479	Farquier and Bradley	"	do	12	14
480	Desoto and Farquier	"	do	12	15
481	Desoto and Minnehaha	"	do	12	5
482	Fifth, 340 feet west of Maria	High	do	6	92
483	Farquier and Forest	"	do	6	72

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
484	Farquier and Mendota	High	Mathews	6	81
485	Farquier and Arcade	"	do	6	80
486	Lincoln 375 feet west of Oakland	"	do	6	55
487	Lincoln and Dale	"	do	6	50
488	Hoffman and Sixth	"	do	6	104
489	Mendota and Reaney	"	do	6	76
490	Ninth and Broadway	Low	do	6	41
491	Onelda and Seventh	"	do	6	30
492	Franklin and Fifth	"	do	4	30
493	Eleventh and Olive	"	do	4	37
494	Martin and Arundel	High	do	6	65
495	Lincoln and St. Albans	"	do	6	52
496	Lincoln and Grotto	"	do	6	44
497	Lincoln and Avon	"	do	6	44
498	Fuller and Arundel	"	do	6	66
499	Fuller and Mackubin	"	do	6	66
500	Fuller and Kent	"	do	6	67
501	Goodhue 50 feet west of Seventh	Low	do	6	30
502	Goodhue and Western	"	do	6	30
503	Goodhue and Richmond	"	do	6	31
504	Portland and St. Albans	High	do	6	48
505	Aurora and Kent	"	do	6	68
506	Aurora and Mackubin	"	do	6	66
507	Aurora and Arundel	"	do	6	70
508	Holly and St. Albans	"	do	6	48
509	Holly and Grotto	"	do	6	46
510	Holly and Avon	"	do	6	44
511	Martin and Ravoux	"	do	6	73
512	Martin and Summit Place	"	do	6	75
513	Central and St. Peter	"	do	4	73
514	Maria and Eighth	"	do	6	88
515	Bradley and Seventh	Low	do	6	35
516	Ashland and St. Albans	High	do	6	49
517	Ashland and Grotto	"	do	6	46
518	Ashland and Avon	"	do	6	44
519	Goodrich at head of Dousman	Low	do	12	31
520	Goodrich and Garfield	"	do	12	30
521	Goodrich and Western	"	do	12	30
522	Eichenwald and Sixth	High	do	6	60
523	Eichenwald and Seventh	"	do	6	60
524	Sinnen and Sixth	"	do	6	58
525	Hague and St. Albans	"	do	6	48
526	Hague and Grotto	"	do	6	46
527	Hague and Miller	"	do	6	44
528	Hague and Fisk	"	do	6	44
529	Selby and St. Albans	"	do	6	46
530	Reaney and Forest	"	do	6	69
531	Reaney and Cypress	"	do	6	76
532	Reaney and Earl	"	do	6	78
533	Irvine Park, north side	Low	do	4	45
534	Irvine Park, south side	"	do	4	40
535	Marshall and Victoria	High	do	12	46
536	Marshall and Fisk	"	do	12	48
537	Marshall and Miller	"	do	12	44
538	Marshall and Grotto	"	do	12	45
539	Earl and Minnehaha	"	do	12	80
540	Earl and Beech	"	do	12	79
541	Reaney and Frank	"	do	6	75
542	Laurel and Dale, northwest corner	"	do	6	50
543	Laurel and St. Albans	"	do	6	48
544	Laurel and Grotto	"	do	6	46
545	Laurel and Miller	"	do	6	44
546	Garfield and Prairie	Low	do	6	35
547	Banfil and Forbes	"	do	4	40
548	Carroll and Dale	High	do	6	35
549	Fuller and Marion	"	do	6	76
550	Fuller and Jay	"	do	6	75
551	Fuller and Farrington	"	do	6	75
552	Fuller and Virginia	"	do	6	74

LIST OF HYDRANTS—(Continued.)

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
553	Summit Place and St. Anthony	High	Mathews	6	78
554	Cedar and Viola	"	do	6	55
555	Cedar and Como	"	do	6	54
556	Viola and Jackson	"	do	6	58
557	Seventh and Frank, northwest corner	"	do	16	82
558	Seventh and Frank, northeast corner	"	do	16	83
559	Seventh and Duluth avenue	"	do	16	81
560	Rice and Lafond	"	do	12	75
561	Rice and Arch	"	do	12	75
562	Rice and Pennsylvania	"	do	12	75
563	Rondo and Ravoux	"	do	6	78
564	Rondo and Summit Place	"	do	6	78
565	William and Olive	Low	do	6	8
566	Olive and Pennsylvania avenue	"	do	6	6
567	Rondo and Louis	High	do	6	77
568	Rondo and Farrington	"	do	6	75
569	Ninth and Oak	Low	do	6	30
570	Franklin and Sixth	"	do	4	30
571	Rondo and Virginia	High	do	6	74
572	Mendota and Beech	"	do	12	70
573	Kittson and Fourth	Low	do	6	75
574	Valley and Warren	High	do	16	65
575	Valley and Fairview	"	do	6	60
576	Mendota and Dawson	"	do	12	61
577	Mendota and Frances	"	do	12	61
578	Mendota and High	"	do	12	66
579	Mt. Airy, head of Broadway	"	do	6	70
580	Fourth and Neill	Low	do	12	65
581	Fourth and Willius	"	do	12	65
582	Fourth and Locust	"	do	12	65
583	Mendota and Freemont	High	do	12	68
584	Mendota and Conway	"	do	12	69
585	Point Douglas	"	do	6	70
586	Point Douglas and Mendota	"	do	6	69
587	East Third and Cypress	"	do	6	68
588	East Third and Forest	"	do	6	68
589	East Third and Mendota	"	do	6	69
590	East Third and Arcade	"	do	6	67
591	Hudson and Mendota	"	do	12	66
592	Mt. Airy and Linden	"	do	6	60
593	Mt. Airy and Warren	"	do	6	50
594	Maple and Euclid	"	do	6	68
595	Mt. Airy and Fairview	"	do	6	57
596	Webster and Seventh	Low	do	6	30
597	Maple and Ravine	High	do	6	69
598	N. E. Cor. Fourth and Broadway	Low	do	12	58
599	Maple and Conway	High	do	6	69
600	Viola and Brewster	"	do	6	58
601	Maple and Fourth	"	do	6	65
602	Viola and Park	"	do	6	75
603	Maple and Sixth	"	do	6	69
604	Margaret and Arcade	"	do	6	60
605	Margaret and Mendota	"	do	6	70
606	Ellen and Marion	"	do	6	75
607	Granite and Courtland	Low	do	6	7
608	Granite and Agate	"	do	6	13
609	Granite and Beaver		do	6	20
610	Margaret and Forest	High	do	6	68
611	Ellen and Goodrich	"	do	6	76
612	Ellen and Farrington	"	do	6	75
613	Ellen and Virginia	"	do	6	75
614	Margaret and Cypress	"	do	6	65
615	Margaret and Earl	"	do	6	80
616	Mississippi and Case	Low	do	6	30
617	Mississippi and Jenks	"	do	6	30
618	Mississippi and Lawson	"	do	6	27
619	Mississippi and Cook	"	do	6	27
620	Mississippi and Magnolia	"	do	6	23
621	Mississippi and Jessamine	"	do	6	25

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
622	Robert and Thirteenth	Low	Mathews	6	26
623	Acker and Buffalo	"	do	6	14
624	Acker and Elk	"	do	6	13
625	Acker and Courtland	"	do	6	13
626	University and Mackubin	High	do	12	72
627	University and Kent	"	do	12	70
628	University and Dale	"	do	12	68
629	Central avenue, head of Central Park	"	do	6	80
630	Central Park Drive east and Summit avenue	"	do	4	90
631	Genesee and Buffalo	Low	do	6	13
632	Ellen and Western	High	do	6	75
633	Ellen and Arundel	"	do	6	74
634	Ellen and Mackubin	"	do	6	73
635	Ellen and Kent	"	do	6	70
636	Aurora and Virginia	"	do	6	75
637	Fourteenth and Robert	Low	do	6	24
638	Payne and Minnehaha	"	do	6	18
639	Reaney and Payne	"	do	6	14
640	Reaney and Edgerton	"	do	6	12
641	Eagle and Spring	"	do	6	70
642	Charles and Marion	High	do	6	76
543	Charles and Gaultier	"	do	6	76
644	Charles and Elfelt	"	do	6	75
645	Charles and Farrington	"	do	6	75
646	Charles and Virginia	"	do	6	75
647	Charles and Western	"	do	6	75
648	Virginia and Marshall	"	do	4	45
649	Decatur and Bedford	Low	do	6	23
650	Decatur and Edgerton	"	do	6	23
651	Beaumont and Preble	"	do	6	23
652	Oakland and Lincoln	High	do	6	50
653	Oakland and Floral	"	do	6	64
654	Oakland and Lawton	"	do	6	74
655	Oakland and Western	"	do	6	80
656	Dakota at end of Bridge	Low	do	6	12
657	Dakota and Fillmore	"	do	6	12
658	Dakota and Fairfield	"	do	6	12
659	Dakota and Indiana avenue	"	do	6	12
660	Dakota and Chicago	"	do	6	12
661	Dakota and Channel	"	do	6	12
662	Toronto and West Seventh	"	do	6	32
663	James and Seventh	"	do	6	33
664	Randolph and Seventh	"	do	6	30
665	Warsaw and Seventh	"	do	6	30
666	Hamilton and Seventh	"	do	6	29
667	Summit and St. Albans	High	do	12	48
668	Carroll and Victoria	"	do	6	56
669	Carroll and Milton	"	do	6	48
670	Western and St. Clair	Low	do	6	29
671	Armstrong and Seventh	"	do	6	30
672	Bay and Seventh	"	do	6	30
673	Lee and Seventh	"	do	6	30

Holly hydrants 46
Mathews 627
Total number of fire hydrants 673

LIST OF STREET SPRINKLING HYDRHNTS.

No.	Location	Measurment of Valve from Hydrant.	Name of Hydrant.	Size of Pipe.
1	Sixth and Sibley	10 feet	Holly	2 inch.
2	Fifth and Wacouta	7½ do	do	do
3	Wacouta and Third	6 do	do	do
4	Fort and Third at Seven Corners	6 do	do	do
5	Third and Jackson	5 do	do	do
6	Minnesota and Third	5½ do	do	do
7	Minnesota and Robert	6 do	do	do
8	Robert and Seventh	6 do	do	do
9	Wacouta and Seventh	7½ do	do	do
10	Ninth and Cedar	8 do	do	do
11	Eighth and Broadway	5 do	do	do
12	John and Seventh	7 do	do	do
13	Walnut and Seventh	5 do	do	do
14	Kittson and Seventh	10 do	do	do
15	Ninth and St. Peter	5¼ do	do	do
16	Pine and Tenth	8½ do	do	do
17	DeRow and Grove	8 do	do	do
18	Waverly Place and Westminster	3½ do	do	do
19	Leech and Seventh	In tunnel	do	po
20	Broadway and Fourth	7 feet	do	do
21	Cedar and Seventh	8 do	do	do
22	College and Wabasha	8 do	do	do
23	College and Tenth	4 do	do	do
24	Pleasant and Third	7 do	do	do
25	Fourth and St. Peter	In tunnel	do	do
26	Franklin and Fourth	In tunnel	do	do
27	Goodrich and Seventh	16 do	do	do
28	Eleventh and Robert	5 do	do	do
29	Mt. Airy and Mississippi	8½ do	do	do
30	Burr and Collins	11 do	do	do
31	Bradley and Woodward	7 do	do	do
32	Martin and Western	10½ do	do	do
33	Western and Dayton	4 do	do	do
34	Portland and Western	34 do	do	do
35	Laurel and Farrington	13½ do	do	do
36	St. Clair and Seventh	10½ do	do	do
37	Ramsey and Pleasant	7½ do	do	do
38	Mackubin and Selby	33½ do	do	do
39	Summit and Nelson	10 do	do	do
40	Mackubin and Summit	14 do	do	do
41	Dale and Marshall avenue	8 do	do	do
42	Dale and Ashland	28 do	do	do
43	Dale and Grand	8 do	do	do
44	Marshall and Western	10 do	do	do
45	Rondo and Rice	10 do	do	do
46	Central and Wabasha	7½ do	do	do
47	Mackubin and University	10 do	do	do
48	University and Rice	9½ do	do	do
49	Bates and Seventh	9 do	do	do
50	Hudson and Maria	10 do	do	do
51	Mendota and Farquier	8 do	do	do
52	Oneida and Eeventh	8 do	do	do
53	Third and Bates	7 do	do	do
54	Fifth and Marfa	7½ do	do	do
55	Chestnut and Franklin	8½ do	do	do
56	Twelfth and Jackson	5 do	do	do
57	Wacouta and Tenth	5 do	do	do
58	Arundel and Holly	19 feet east 19 feet south	do do	do do
59	Sherman and Oak	9 feet	do	do
60	Grant and Aurora	9 do	do	do
61	Sixth and Wabasha	Tunnel	do	do
62	Eichenwald and Seventh	10 feet	do	do
63	Sumen and Seventh	13 do	do	do
64	Reaney and Seventh	8 do	do	do
65	Earl and Seventh	8 do	do	do
66	Locust and Ninth	14 do	do	do
67	Walnut and Seventh	36 do	do	do
68	Ninth and Fort	8 do	do	do
69	Pearl and Canada	5 do	do	do

LIST OF STREET SPRINKLING HYDRANTS.—*Concluded.*

Location.	Measurment of Valve from Hydrant.		Name of Hydrant.	Size of Pipe.
endota and Seventh	11	feet	Holly	2 inch.
ickson and Fourteenth	8	do	do	do
ohn and Fourth	8	do	do	do
aple and Conway	10	do	do	do
arrington and Carroll	8	do	do	do
opping and Como				
ob and Grant	27½	do	do	do
urer and Western			do	do
ker and Mississippi	6	do	do	do
ayne and Minnehaha	7	do	do	do
airfield and Dakota	8½	do	do	do
amilton and West Seventh			do	do

ber of Street Sprinkling Hydrants placed in service this year, 29.

LOCATION OF VALVES (LOW SERVICE).

Street	Location	3 inch	4 inch	6 inch	12 inch	16 inch	20 inch	24 inch	30 inch	36 inch
Acker	West line of Mississippi street			1						
Armstrong	East line of Seventh street			1						
Banfil	East line of Seventh street		1							
Bay	South line of Seventh street			1						
Beaumont	West line of Bedford street			1						
Beaumont	East line of Desoto street			1						
Becker	South line of Lafayette avenue			1						
Bedford	North line of North street			1						
Bedford	South line of Minnehaha street			1						
Bradley	North line of Partridge street			1						
Broadway	Blow off at Ninth street			1						
Broadway	North line of Seventh street			2				1		
Broadway	South line of Grove street			2				1		
Broadway	North line of Third street, blow off	1				1				
Broadway	South line of Seventh street					1				
Broadway	North line of Thirteenth street		1							
Bruno	South line of Lafayette avenue			1						
Buffalo	North line of Acker street			1						
Buffalo	South line of Granite street			1						
Burr	South line of Farquier street			1						
Burr	South line of North street			1						
Burr	South line of Hopkins street			1						
Burr	North line of Collins street			1						
Burr	North line of Beaumont street			1						
Canada	North line of Ninth street			1						
Canada	South line of Pearl street			1						
Canada	North line of Pearl street			1						
Cedar	North line of Twelfth street			1						
Cedar	South line of Twelfth street						1			
Cedar	Blow off at Sixth street	1								
Cedar	North line of Third street				1					
Cedar	South line of Seventh street				1					
Cedar	North line of Seventh street				1					
Cedar	South line of Tenth street				1					
Cedar	Blow off at Eighth street	1								
Chestnut	West line of Franklin street			1						
Chestnut	East line of Seventh street			1						
College	West line of St. Peter street			1						
College	East line of Wabasha street			1						
College	West line of Wabasha street			1						
College	West line of Tenth street			1						
College	West line of Cedar street			1						
Collins	East line of Lafayette avenue			1						
Collins	West line of Bedford street			1						
Cooper	North line of Ninth street		1							
Cooper	North line of Tenth street		1							
Cooper	North line of Spruce street		1							
Dakota	North line of Plato avenue			1						
Dakota	North line of Indiana street			1						
Dakota	South line of Indiana street			1						
Decatur	East line of Bedford street			1						
Desoto	South line of Collins street			1						
Douglas	South line of Seventh street			1						
Douglas	North line of Seventh street			1						
Douglas	South line of Lisbon street			1						
Duke	South line of Seventh street			1						
Eighth	West line of Locust street		1							
Eighth	East line of Locust street		1							
Eighth	East line of Broadway street		2							
Eighth	West line of Broadway street		2							
Eighth	West line of Jackson street		1							
Eighth	East line of Cedar street		1							
Eighth	West line of Cooper street		1							
Eighth	West line of Cedar street		1							
Eighth	West line of Kittson street, blow off	1								
Eighth	East line of Minnesota street		1							
Eighth	East line of Jackson street		1							
Eighth	East line of Wabasha street		1							
Eleventh	East line of Broadway street		2							

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Eleventh	West line of Jackson street			1						
Eleventh	West line of Robert street			1						
Eleventh	East line of Cedar street			1						
Elm	East line of Exchange street		1							
Exchange	South line of Eagle street		1							
Exchange	South line of Chestnut street		1							
Exchange	North line of Sherman street		1							
Exchange	North line of Seventh street		1							
Exchange	West line of St. Peter street		1							
Exchange	South line of Ninth street		1							
Exchange	East line of Wilkin street		1							
Exchange	South line of Third street		1							
Exchange	North line of Third street		1							
Fairfield	South line of Dakota avenue		1							
Farquier	East line of De Soto street				1					
Fifth	East line of Seventh street		1							
Fifth	East line of Jackson street		1							
Fifth	West line of Jackson street		1							
Fifth	East line of Minnesota street		1							
Fifth	East line of Oak street		1							
Fifth	East line of Cedar street		1							
Fifth	East line of Wabasha street		1							
Fifth	West line of Wabasha street			1						
Fifth	West line of St. Peter street		1							
Fifth	West line of Washington street		1							
Fifth	West line of Cedar street		1							
Fifth	East line of Sibley street		1							
Fifth	West line of Broadway street		1							
Fifth	East line of John street			1						
Fifth	West line of Willius street			1						
Fifth	West line of Neill street			1						
Fifth	West line of Rosabel street		1							
Fifth	East line of Fort street		1							
Forbes	North line of Smith street			1						
Forbes	North line of Ramsey street			1						
Forbes	North line of Seventh street			1						
Forbes	South line of Seventh street			1						
Fort	North line of Sixth street			1						
Fort	South line of Tenth street			1						
Fort	North line of Fourth street			1						
Fourteenth	East line of Jackson street			1						
Fourteenth	West line of Canada street			1						
Fourth	East line of Franklin street			1						
Fourth	West line of Broadway street			1						
Fourth	West line of Rosabel street			1						
Fourth	West line of Wacouta street			1						
Fourth	East line of Jackson street			1						
Fourth	West line of Jackson street			1						
Fourth	West line of Wabasha street			1						
Fourth	West line of Market street			1						
Fourth	East line of Cedar street			1						
Fourth	East line of Minnesota street			1						
Fourth	West line of Cedar street			1						
Fourth	East line of Broadway street				1					
Fourth	West line of Locust street				1					
Fourth	West line of Kittson street				1					
Fourth	Blow off at John street	1								
Fourth	Blow off at Neill street	1								
Franklin	North line of Seventh street		1							
Franklin	North line of Fourth street		1							
Franklin	North line of Sherman street		1							
Franklin	North line of Irvine Park		1							
Franklin	North line of Third street		1							
Franklin	South line of Seventh street		1							
Franklin	South line of Ninth street		1							
Garfield	North line of Goodhue street			1						
Genesee	West line of Mississippi street			1						
Granite	East line of Agatha street			1						
Granite	West line of Mississippi street			1						
Goodhue	East line of Seventh street			1						
Goodhue	West line of Seventh street			1						
Goodrich	East line of Seventh street			1						
Goodrich	West line of Seventh street				1					
Goodrich	West line of Seventh street, blow off	1								
Grace	East line of Seventh street			1						

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Grove	Blow off at Mississippi street		1							
Grove	On hydrant west of Mississippi street		1							
Grove	West line of Lafayette avenue			1						
Grove	West line of Mississippi street						1			
Grove	In center of Mississippi street						1			
Hamilton	East line of Seventh street			1						
Hopkins	East line of De Soto street			1						
Hopkins	West line of Bradley street			1						
Jackson	Blow off at levee	1								
Jackson	North line of levee		1							
Jackson	South line of Fourth street			1						
Jackson	North line of Seventh street			1						
Jackson	South line of Seventh street			1						
Jackson	North line of Eighth street			1						
Jackson	North line of Ninth street			1						
Jackson	South line of Twelfth street			1						
Jackson	North line of Pearl street			1						
Jackson	South line of Fourteenth street			1						
James	East line of Seventh street			1						
Jefferson	West line of Seventh street				1					
Jessie	South line of Farquier street			1						
John	South line of Tenth street		1							
John	South line of Seventh street			1						
John	North line of Fourth street			1						
John	North line of Seventh street		1							
John	North line of Fifth street			1						
John	South line of Grove street		1							
John	North line of Grove street		1							
John	North line of Olmsted street			1						
John	South line of Olmsted street			1						
Kittson	South line of Seventh street			1						
Kittson	North line of Fifth street			1						
Kittson	North line of Fourth street			1						
Lafayette	South line of Collins street					1				
Lafayette	Blow off at N. P. right of way		1							
Lafayette	At end of retaining wall		1			1				
Lafayette	Blow off at end of 4-inch pipe	1								
Lee	East line of Seventh street			1						
Leech	North line of Seventh street			1						
Leech	North line of Goodrich avenue			1						
Leech	North line of McBoal street			1						
Locust	North line of Seventh street					1				
L'Orient	North line of Thirteenth street			1						
McBoal	East line of Seventh street			1						
McBoal	East line of Forbes street			1						
McBoal	West line of Wilkin street			1						
McBoal	West line of Seventh street			1						
Magnolia	Center of Mississippi street			1						
Market	North line of Third street		1							
Minnesota	North line of Third street		1							
Minnesota	South line of Fifth street		1							
Minnesota	South line of Seventh street		1							
Minnesota	North line of Seventh street		1							
Minnesota	South line of Tenth street		1							
Minnesota	South line of Eleventh street		1							
Minnesota	South line of Twelfth street		1							
Mississippi	North line of Grove street			2					1	
Mississippi	North line of Nash street			1						
Mississippi	North line of Glencoe street			1						
Mississippi	Blow off at North line of Grove			1						
Mississippi	South line of Cayuga			2						
Mississippi	South line of Minnehaha street			2						
Mississippi	Blow off at N. line of St. P., M. & M. R. R.			1						
Mississippi	N. line St. P., M. & M. right of way			2						
Mississippi	South line of Acker street								1	
Mississippi	Blow off at Trout Brook			1						
Mississippi	North line of N. P. railroad			2						
Mississippi	West line of Maryland street			2					1	
Mississippi	Blow off at creek N. of Magnolia av.			1						
Mississippi	Blow off 200 ft. S. of Como & Phalen avs			1						
Mississippi	S. of Como & Ph'len, b'w off & m'in valve			1					1	
Mississippi	Blow off 2,000 ft. N. of Como & Phalen			1						
Mississippi	At reservoir and p'mp'g stat'n blow off			1					1	1
Mt. Airy	West line of Mississippi street			1						
Mt. Ida	West line of De Soto street			1						

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Nash	West line of Mississippi street			2						
Nash	East line of Mississippi street			2						
Neill	North line of Seventh street		1							
Ninth	East line of Locust street		1							
Ninth	West line of Locust street			1						
Ninth	East line of Broadway street			2						
Ninth	West line of Broadway street			2						
Ninth	West line of Jackson street			1						
Ninth	West line of St. Peter street			1						
Ninth	East line of Fort street			1						
Ninth	East line of Wabasha street		1							
Ninth	East line of Cedar street			1						
Ninth	West line of Cedar street			1						
Ninth	East line of Minnesota street			1						
Ninth	West line of Cooper street			1						
Ninth	West line of Fort street			1						
Norris	East line of Temperance street		1							
Norris	West line of Canada street		1							
North	West line of Bradley street			1						
Oak	North line of Sixth street			1						
Oak	North line of Third street			1						
Oak	South line of Third street			1						
Oak	North line of Walnut street			1						
Oak	North line of Ramsey street			1						
Oak	North line of Sherman street			1						
Olive	South line of Seventh street		1							
Olive	South line of Grove street		1							
Olive	South line of Olmsted street		1							
Olive	North line of Grove street		1							
Olive	North line of Olmsted street			1						
Oneida	South line of Seventh street			1						
Otsego	North line of Lafayette avenue			1						
Payne	South line of Farquier street			1						
Partridge	West line of Bradley street		1							
Pearl	East line of Jackson street						1			
Pearl	On hydrant in middle of block		1							
Pennsylvania	West line of Mississippi street			1						
Pennsylvania	East line of Mississippi street			1						
Pine	North line of Ninth street		1							
Pine	South line of Olmsted street			1						
Pine	North line of Grove street			1						
Pine	South line of William street			1						
Pine	North line of Olmsted street			1						
Pleasant	West line of Forbes street			1						
Pleasant	North line of Walnut street			1						
Pleasant	South line of Third street			1						
Pleasant	North line of Third street			1						
Prairie	West line of Douglas street			1						
Prince	East line of Broadway street			1						
Ramsey	South line of Pleasant avenue			1						
Ramsey	North line of Forbes street			1						
Randolph	East line of Seventh street			1						
Richmond	South line of Seventh street			1						
Robert	South line of Third street			1						
Robert	North line of Third street			1						
Robert	North line of Fourth street			1						
Robert	North line of Fifth street			1						
Robert	North line of Seventh street			1						
Robert	South line of Seventh street			1						
Robert	North line of Eighth street			1						
Robert	South line of Eleventh street			1						
Robert	South line of Twelfth street			1						
Robert	North line of Ninth street			1						
Robert	North line of Twelfth street			1						
Robert	South line of Fourteenth street			1						
Rosabel	South line of Fourth street			1						
Rosabel	North line of Fifth street			1						
Rosabel	South line of Seventh street			1						
St. Clair	East line of Seventh street			1						
St. Peter	Dividing gate bet. high & low service			1						
St. Peter	South line of Tenth street			1						
St. Peter	North line of Seventh street			1						
St. Peter	North line of Fourth street			1						
St. Peter	South line of Sixth street			1						
St. Peter	North line of Third street			1						

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street	Location	3 inch	4 inch	6 inch	12 inch	16 inch	20 inch	24 inch	30 inch	36 inch
St. Peter	North line of Tenth street			1						
Seventh	East line of Locust street			1						
Seventh	West line of Jackson street					1				
Seventh	Blow off at Robert street	1								
Seventh	East line of St. Peter street				1					
Seventh	East line of Third street				1					
Seventh	East line of Broadway street					1				
Seventh	West line of Kittson street			1						
Seventh	Blow off at Walnut street	1								
Seventh	West line of Broadway street					1				
Seventh	South line of Third street				1					
Seventh	North line of Ramsey street				1					
Seventh	South line of Leech street				1					
Seventh	South line of McBoal street					1				
Seventh	North line of Yankee street					1				
Seventh	North line of Milwaukee railroad					1				
Seventh	On hydrant at Seventh and Colborne		1							
Seventh	On hydrant at Seventh and Jefferson		1							
Seventh	Blow off at Goodrich avenue	1								
Seventh	Blow off at Jeffers avenue	1								
Seventh	South line of Palace street					1				
Seventh	Blow off at James street	1								
Seventh	Blow off at Lee avenue, south line		1							
Seventh	South line of Hamilton street					1				
Sherman	East line of Exchange street			1						
Sherman	East line of Wilkin street			1						
Sherman	East line of Seventh street			1						
Sherman	North line of Seventh street			1						
Sherman	South line of Pleasant avenue			1						
Sibley	South line of Third street		1							
Sibley	North line of Third street			1						
Sibley	South line of Fifth street			1						
Sibley	South line of Seventh street			1						
Sibley	North line of Seventh street		1							
Sixth	West line of Willius street		1							
Sixth	East line of John street		1							
Sixth	West line of Cedar street		1							
Sixth	East line of Jackson street		1							
Sixth	West line of Noll street		1							
Sixth	East line of Sibley street		1							
Sixth	West line of Rosabel street		1							
Sixth	East line of Broadway street		1							
Sixth	West line of Kittson street		1							
Sixth	West line of Broadway street		1							
Sixth	East line of Robert street		1							
Sixth	West line of Oak street			1						
Sixth	West line of Fort street			1						
Sixth	East line of Exchange street			1						
Sixth	East line of Olive street		1							
Sixth	West line of Jackson street		1							
Sixth	East line of Minnesota street		1							
Sixth	East line of Cedar street		1							
Sixth	East line of Fort street			1						
Sixth	East line of Wabasha street		1							
Sixth	West line of Wabasha street		1							
Smith	East line of Seventh street			1						
Smith	West line of Wilkin street			1						
Somerset	East line of Pine street		1							
Somerset	West line of John street		1							
Temperance	North line of Eighth street		1							
Temperance	North line of Pearl street		1							
Temperance	North line of Tenth street		1							
Temperance	South line of Pearl street		1							
Tenth	South line of College avenue			1						
Tenth	North line of Fort street			1						
Tenth	On hydrant No. 23, middle of block		1							
Tenth	West line of St. Peter street						1			
Tenth	Blow off East line of Wabasha street		1							
Tenth	On hydrant at Cedar street		1							
Tenth	East line of Broadway street			2						
Tenth	West line of Canada street		1							
Tenth	East line of Jackson street		1							
Tenth	West line of Locust street			1						
Tenth	East line of Cedar street			1						
Tenth	West line of Robert street			1						

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Tenth	West line of Jackson street		1							
Tenth	West line of Broadway street		2							
Third	Between Cedar and Minnesota streets			1						
Third	West line of Jackson street			1						
Third	East line of Jackson street			1						
Third	East line of Wacouta street			1						
Third	West line of Broadway street			1						
Third	South line of Seventh street			1						
Third	North line of Fourth street			1						
Third	East line of St. Peter street			1						
Third	West line of Washington street			1						
Thirteenth	West line of Pine street		1							
Thirteenth	West line of Canada street			1						
Thirteenth	East line of Mississippi street			2						
Thirteenth	East line of Jackson street			1						
Thirteenth	West line of Mississippi street			2						
Thirteenth	East line of Canada street			1						
Twelfth	East line of Broadway street		2							
Twelfth	On hydrant at Cedar street		1							
Twelfth	On hydrant at Minnesota street		1							
Twelfth	On hydrant at Jackson street		1							
Twelfth	Blow off west line of Jackson street		1							
Toronto	South line of Seventh street			1						
Wabasha	North line of College avenue			1						
Wabasha	North line of Ninth street			1						
Wabasha	North line of Seventh street			1						
Wabasha	North line of Third street			1						
Wabasha	South line of Fifth street			1						
Wabasha	North line of Tenth street			1						
Wabasha	South line of Tenth street			1						
Wacouta	South line of Seventh street		1							
Wacouta	North line of Tenth street		1							
Wacouta	North line of Third street			1						
Wacouta	South line of Fifth street			1						
Wacouta	South line of Sixth street			1						
Wacouta	North line of Seventh street		1							
Wacouta	North line of Eighth street		1							
Walnut	East line of Seventh street		1							
Walnut	East line of Pleasant avenue		1							
Walnut	West line of Seventh street		1							
Walnut	East line of Exchange street		1							
Warsaw	South line of Seventh street			1						
Washington	North line of Chestnut street		1							
Washington	South line of Third street		1							
Washington	North line of Third street		1							
Washington	North line of Fourth street		1							
Washington	North line of Fifth street		1							
Waverly Place	West line of Lafayette avenue			1						
Waverly Place	East line of John street			1						
Webster	South line of Seventh street			1						
Western	South line of Seventh street			1						
Wilkin	North line of Smith street			1						
William	East line of Mississippi street			2						
William	West line of Olive street			1						
Willius	South line of Seventh street		1							
Willius	North line of Fifth street		1							
Yankee	East line of Seventh street		1							
Main line old	Gate house Phalen Lake						1	1		
Main line old	At plow works					1	1	1		
Main line old	At harvester works					1				
Main line old	North of plow works at railroad			2						
Main line old	At Seventh street and Phalen creek					1				
Main line old	Blow of at Seventh st. and Phalen av	1								
Main line old	Payne avenue and Ross street					1				
Main line old	Blow off bet. Forest and Cypress sts.	1								
Main line old	Blow off at Arcade street	1								
Total		17	140	265	15	17	7	4	5	1

Number of valves laid this year 63
Total number of valves low service 471

LOCATION OF VALVES (HIGH SERVICE.)

Street	Location	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Arundel	North line of Summit		1					
Arundel	South line of Selby		1					
Arundel	North line of Dayton		1					
Ashland	West line of Western			1				
Ashland	East line of Mackubin			1				
Ashland	East line of Dale			1				
Ashland	West line of Dale			1				
Ashland	East line of Grotto			1				
Aurora	West line of Western			1				
Aurora	East line of Mackubin			1				
Aurora	East line of Western			1				
Bates	North line of [illegible] way				1			
Bates	South line of Seventh				1			
Beech	East line of Seventh			1				
Blair	West line of Western			1				
Broadway	North line of Fifteenth			1				
Canada	North line of Fifteenth			1				
Canada	South line of Valley			1				
Carroll	West line of Western			1				
Carroll	East line of Mackubin			1				
Carroll	East line of Western			1				
Carroll	West line of Farrington			1				
Carroll	East line of Louis			1				
Carroll	West line of Rice			1				
Cedar	South line of Central			1				
Cedar	North line of Central			1				
Cedar	South line of University			1				
Cedar	North line of University			1				
Cedar	South line of Viola			1				
Central avenue	West line of Wabasha			1				
Central avenue	East line of Cedar			1				
Central avenue	East line of Rice		1					
Central avenue	West line of St. Peter		1					
Central Park	South line of Central avenue		1					
Charles	West line of Rice			1				
Charles	West line of Gaultier			1				
Charles	East line of Western			1				
Como	East line of Dale						1	
Como	South line of Topping						1	
Como	Blow-off at culvert			1				
Como	West line of Western						1	
Dale	North line of Como							1
Dale	Blow-off north line of Como			1				
Dale	Blow-off at Nigger lake			1				
Dale	North line of Phalen and Como							1
Dale	Blow-off at cemetery			1				
Dale	Blow-off at junction of 20in and 24in pipe			1				
Dale	For Reservoir							1
Dale	North of 24in main for reservoir						1	
Dale	Blow-off south of McCarron road			1				
Dale	South line of McCarron road						1	
Dale	South line of Marshall					1		
Dale	Blow-off at Ashland	1						
Dale	North line of Summit					1		
Dale	South line of Summit				1			
Dayton	West line of Summit				1			
Dayton	East line of Western				1			
Dayton	West line of Western				1			
Dayton	East line of Mackubin				1			
Dayton	East line of Dale				1			
Dayton	West line of Dale			1				
Dayton	East line of Grotto			1				
Dayton	West line of Milton			1				
Earl	South line of Seventh				1			
Edmund	West line of Rice			1				
Eichenwald	South line of Seventh			1				
Ellen	West line of Rice			1				
Ellen	West line of Gaultier			1				
Ellen	East line of Western			1				

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Ellen	West line of Western			1				
Ellen	East line of Mackubin			1				
Fairview	North line of Valley			1				
Farquier	East line of Seventh			1				
Farquier	West line of Seventh			1				
Farquier	West line of Earl			1				
Farrington	North line of Summit			1				
Farrington	North line of Laurel			1				
Farrington	South line of Dayton			1				
Farrington	North line of Dayton			1				
Farrington	North line of Nelson			1				
Farrington	South line of Carroll			1				
Fifteenth	South line of Valley					1		
Fifteenth	Blow-off 275 feet west of Canada	1						
Fifth East	East line of Bates			1				
Fifth East	West line of Bates			1				
Floral	South line of Summit		1					
Fuller	West line of Western			1				
Fuller	East line of Mackubin			1				
Fuller	East line of Western			1				
Fuller	West line of Farrington			1				
Fuller	East line of Louis			1				
Fuller	West line of Rice			1				
Grand	East line of Oakland			1				
Grand	East line of Dale			1				
Grand	West line of Dale			1				
Grand	East line of Grotto			1				
Grove	Blow-off at Pine	1						
Grove	East line of Monroe					1		
Grove	Blow-off at Trout Brook	1						
Hague	West line of Dale			1				
Hague	East line of Grotto			1				
Hague	West line of Miller			1				
Hoffman	South line of Seventh			1				
Holly	West line of Western			1				
Holly	East line of Mackubin			1				
Holly	East line of Dale			1				
Holly	West line of Dale			1				
Holly	East line of Grotto			1				
Hudson	West line of Bates			1				
Hudson	East line of Bates			1				
Iglehart	West line of Western			1				
Iglehart	East line of Mackubin			1				
Iglehart	East line of Western			1				
Iglehart	West line of Farrington			1				
Iglehart	West line of Louis			1				
Iglehart	West line of Summit Place			1				
Iglehart	West line of Rice			1				
Iglehart	East line of Rice			1				
Iglehart	West line of Wabasha			1				
Jackson	North line of Fifteenth			1				
Kent	South line of Holly		1					
Kent	South line of Ashland		1					
Kent	South line of Laurel		1					
Kent	South line of Selby		1					
Kent	North line of Marshall		1					
Kent	North line of Iglehart		1					
Laurel	West line of Western			1				
Laurel	East line of Mackubin			1				
Laurel	East line of Dale			1				
Laurel	East line of Western			1				
Laurel	East line of Virginia			1				
Laurel	West line of Nina			1				
Laurel	West line of Dale			1				
Laurel	East line of Grotto			1				
Lawton	South line of Summit			1				
Lincoln	West line of Oakland			1				
Lincoln	East line of Dale			1				

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.
Lincoln	West line of Dale			1			
Lincoln	East line of Grotto			1			
Louis	North line of Nelson			1			
Louis	South line of Carroll			1			
McCarron Road	Forced main south of Pumping station						1
McCarron Road	Blow-off at Trout Brook			1			
McCarron Road	South of McCarron Lake						1
McCarron Road	Blow-off southwest of McCarron Lake			1			
McCarron Road	West line of Dale						1
Mackubin	North line of Summit			1			
Mackubin	South line of Holly			1			
Mackubin	South line of Ashland			1			
Mackubin	South line of Laurel			1			
Mackubin	South line of Selby			1			
Mackubin	South line of Dayton			1			
Mackubin	North line of Dayton			1			
Mackubin	North line of Marshall			1			
Mackubin	North line of Iglehart			1			
Mackubin	North line of Carroll			1			
Mackubin	South line of Aurora			1			
Mackubin	South line of University			1			
Maple	South line of Hudson			1			
Maple	North line of Euclid			1			
Maple	North line of Conway			1			
Maple	South line of Fourth			1			
Maple	North line of Fifth			1			
Maple	South line of Seventh			1			
Margaret	East line of Forest			1			
Margaret	East line of Mendota			1			
Margaret	West line of Mendota			1			
Margaret	East line of Seventh			1			
Maria	North line of Seventh			1			
Maria	South line of Seventh			1			
Maria	South line of Fifth			1			
Maria	South line of Fourth			1			
Maria	South line of Ravine			1			
Maria	North line of Hudson			1			
Maria	North line of Conway			1			
Marshall	West line of Western			1			
Marshall	East line of Mackubin			1			
Marshall	East line of Dale			1			
Marshall	West line of Dale				1		
Marshall	West line of Grotto				1		
Marshall	East line of Victoria				1		
Martin	West line of Western			1			
Martin	East line of Rice			1			
Martin	West line of Rice			1			
Mendota	North line of Seventh			1			
Mendota	South line of Farquier			1			
Mendota	South line of Seventh				1		
Mendota	Blow-off south line of Seventh		1				
Mendota	North line of Margaret				1		
Mendota	Blow-off north line of Margaret		1				
Mendota	South line of High				1		
Mendota	North line of Point Douglas, blow-off		1				
Mendota	North line of Hudson				1		
Mt Airy	East line of Linden			1			
Mt Airy	West line of Warren			1			
Nelson	East line of Western			1			
Nelson	East line of Farrington			1			
Nelson	West line of Summit			1			
Nourse	West line of Western			1			
Nina	North line of Summit			1			
Oakland	South line of Summit			1			
Oakland	South line of Lincoln			1			
Oakland	East line of Lawton			1			
Park avenue	South line of University			1			
Park avenue	North line of University			1			
Park avenue	North line of Martin			1			

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Park Place	South line of Summit		1					
Pine	North line of Grove					1		
Point Douglas	East line of Mendota			1				
Point Douglas	West line of Mendota			1				
Portland	West line of Western			1				
Portland	East line of Mackubin			1				
Portland	East line of Dale			1				
Portland	West line of Dale			1				
Ramsey	South line of Summit			1				
Reaney	East line of Earl			1				
Reaney	West line of Earl			1				
Reaney	East line of Seventh			1				
Rice	South line of Summit			1				
Rice	North line of Summit					1		
Rice	Blow-off at Summit	1						
Rice	North line of St. Anthony					1		
Rice	South line of University					1		
Rice	North line of University						1	
Rice	On hydrant at Rice and University		1					
Rice	On hydrant at Rice and Earl		1					
Rice	On hydrant at Rice and Charles		1					
Rice	On hydrant at Rice and Edmunds		1					
Rice	Blow-off north line of Edmunds		1					
Rice	South line of Como						1	
Rice	North line of Como				1			
Robert	North line of University			1				
Robert	South line of University			1				
Robert	South line of Aurora			1				
Rondo	West line of Western			1				
Rondo	East line of Mackubin			1				
Rondo	West line of Rice			1				
Rondo	East line of Louis			1				
Rondo	West line of Farrington			1				
Rondo	East line of Western			1				
Ross	East line of Seventh			1				
Ross	West line of Earl			1				
St. Anthony	West line of Western			1				
St. Peter	South line of Iglehart			1				
St. Peter	South line of Tilton			1				
St. Peter	South line of Martin			1				
St. Peter	North line of Martin			1				
St. Peter	South line of University			1				
Selby	West line of Summit			1				
Selby	West line of Nina			1				
Selby	West line of Farrington			1				
Selby	East line of Western			1				
Selby	West line of Western			1				
Selby	East line of Mackubin			1				
Selby	East line of Dale			1				
Selby	West line of Dale			1				
Seventh, East	West line of Hoffman					1		
Seventh, East	Blow-off southwest cor. Seventh and Hoff'n	1						
Seventh, East	West line of Maple					1		
Seventh, East	Blow-off south line of Maple	1						
Seventh, East	North line of Beech					1		
Seventh, East	Blow-off southwest cor. of Mendota	1						
Seventh, East	South line of Farquier					1		
Seventh, East	West line of Earl					1		
Seventh, East	Blow-off at Phalen Creek		1					
Sinnen	South line of Seventh			1				
Suction main	West line of Mississippi							1
Suction main	West line of Mississippi							1
Suction main	West line of Mississippi, blow-off			1				
Summit	East line of Wabasha			1				
Summit	East line of St. Peter			1				
Summit	East line of Rice			1				
Summit	West line of Rice				1			
Summit	Blow-off west line of Rice	1						
Summit	South line of Dayton			1				

LOCATION OF VALVES (HIGH SERVICE)—*Concluded.*

Street	Location	3 inch	4 inch	6 inch	12 inch	16 inch	20 inch	24 inch
Summit	North line of Nina			1				
Summit	East line of Western			1				
Summit	East line of Mackubin				1			
Summit	Blow-off east line of Oakland	1						
Summit	East line of Dale				1			
Summit	West line of Dale				1			
Summit Place	North line of Nelson			1				
Summit Place	South line of Carroll			1				
Summit Place	South line of Rondo			1				
Summit Place	South line of St. Anthony			1				
Summit Place	South line of Martin			1				
Summit Place	South line of Fuller			1				
Third, East	West line of Bates			1				
Third, East	East line of Bates			1				
Third, West	South line of Summit			1				
Third, East	East line of Maple			1				
Third, East	West line of Mendota			1				
Third, East	East line of Mendota			1				
Thirteenth	Blow off at Broadway	1						
Thomas	West line of Western			1				
Tilton	East line of Rice			1				
Tilton	East line of St. Peter			1				
Topping	West line of Como			1				
University	West line of Robert					1		
University	Blow off east line of Rice	1						
University	East line of Rice					1		
University	West line of Rice				1			
University	West line of Gauthier				1			
University	East line of Western				1			
University	West line of Western				1			
University	East line of Mackubin				1			
Valley	West line of Broadway			1			1	
Viola	East line of Rice			1				
Viola	East line of Park avenue			1				
Viola	West line of Cedar			1				
Virginia	North line of Summit			1				
Virginia	South line of Selby			1				
Virginia	South line of Dayton			1				
Virginia	North line of Dayton			1				
Virginia	North line of Nelson		1					
Virginia	South line of Iglehart		1					
Wabasha	North line of Iglehart			1				
Wabasha	South line of Central			1				
Wabasha	North line of Central		1					
Western	South line of Como					1		
Western	North line of Lafond					1		
Western	North line of Lafond blow-off	1						
Western	North line of University					1		
Western	North line of Rondo					1		
Western	Blow off Rondo and Western	1						
Western	North line of Dayton						1	
Western	South line of Dayton				1			
Western	South line of Holly				1			
Western	Blow off south line of Holly	2						
Totals		19	23	224	28	21	10	5

Number of valves laid this year on high service	98
Total number on high service	339
Total number of valves on high and low service	801

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1886.

PIPE, FITTINGS, ETC.

132 feet 30 inch pipe.
84 " 24 " "
72 " 20 " "
36 " 16 " "
456 " 12 " "
2,904 " 6 " "
792 " 4 " "
36 " 3 " "
7 30 " curvature pipe.
1 24 " " "
1 20 " " "
3 16 " " "
2 12 " " "
3 6 " " "
15 4 " " "
5 6 " quarter bends.
3 4 " " "
1 30 " sleeve.
2 16 " "
2 12 " "
14 6 " "
24 4 " "
2 16 " plugs.
4 12 " "
29 6 " "
43 4 " "
3 6 " hoods.
1 4 " "
1 30x 6 inch 4-way branch
1 20x 6 " 4 " "
1 20x 6 " 3 " "
1 24x 4 " 3 " "
1 16x12 " 4 " "
1 16x 6 " 4 " "
2 16x 6 " 3 " "
1 16x 4 " 3 " "
6 12x 4 " 4 " "
1 12x12 " 3 " "
2 12x 6 " 3 " "
1 12x 4 " 3 " "
15 6x 6 " 4 " "
7 6x 4 " 4 " "
8 6x 6 " 3 " "
35 6x 4 " 3 " "
3 6x 6 " 3 " "
6 4x 4 " 3 " "
2 4x 3 " 3 " "
2 reducers, from 16 to 12 inches.
1 " " 12 to 6 "
1 " " 6 to 4 "
17,306 pounds of pig lead.
325 " of hemp packing.
3 cans blasting powder.
900 feet of fuse.

GATE AND DUPLICATES.

1 24 inch gate.
3 20 " "
2 16 " "
7 6 " "
13 4 " "
1 2½ " "
3 1½ " "
5 1¼ " "
59 Bingham & Morgan's iron gate boxes, complete.
2 16 inch gate stems.
2 6 " " "
11 4 " " "
2 3 " " "
1 16 " nut and wedge.
3 4 " " " "
1 3 " " " "
3 pairs 4 inch gate faces.
6 nuts for top of gates.
2 pairs brass seats for gates.
2 4 inch domes for gates,

HYDRANTS AND HYDRANT DUPLICATES.

3 Mathews hydrants, complete.
2 " " incomplete,
5 Holly hydrants, complete.
2 steamers, for thawing out hydrants.
2 lots of miscellaneous duplicates, for hydrants.
1 kit of tools for repairing hydrants.

PIPE LAYING TOOLS.

8 lead ladles.
7 " pots.
6 " furnaces.
4 derricks.

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1886—

CONCLUDED.

PIPE LAYING TOOLS *Continued.*

1 Edison diaphragm wrecking pump and 2 suctions.

And all other requisites required for pipe laying.

CONNECTION STOCK AND TOOLS.

400 feet ½ to 2½ inch galv. iron pipe.
2 scales.
1 lot iron pipe fittings, from ½ to 2 inches.
16,100 lbs. lead pipe, from ½ to 1½ inch.
2 kits plumber's tools, complete.
3 Mueller's tapping machine, complete.
680 feet of cement pipe, for stop boxes.
7 sets of 4 inch pipe moulds.
176 Bingham & Morgan stop boxes.
39 corporation taps, from ½ to 1 inch.
85 lbs. solder.
18 stops.

And a lot of miscellaneous duplicates for connections.

MISCELLANEOUS AND STABLE ACCOUNTS.

2 horses.
1 large truck, for from 24 to 30 inch pipe.
1 truck.
2 buggies.
1 bob-sleigh.
1 cutter.
4 sets single harness.
6 horse blankets.
1 buffalo robe.
A quantity of feed for horses.
1 anvil.
2 farmer's kettles.
95 feet of ½ inch hose, &c., etc.

METERS.

77 meters, from ½ to 2 inches.
17 " in good order.
60 " in bad repair.

ENGINEER'S REPORT.

ST. PAUL WATER WORKS PUMPING STATION.
December 1st, 1886.

To the Honorable Board of Water Commissioners of the City of St. Paul, Minn.:

GENTLEMEN:—I herewith submit the Second Annual Report of the operations of these Works—this being for the year ending November 30th, 1886.

The engines and boilers are in good condition, and their work during the past two years has been very satisfactory.

Respectfully submitted,

MARTIN FEIST,

Engineer.

ST. PAUL WATER WORKS, ENGINEER'S REPORT,

From Pumping Station for the year ending November 30, 1886.

OPERATION OF ENGINE NO 1.

MONTHS	Number of Hours run per Month	Total Revolutions per Month	Average Number of Revolutions per Day	Total No. of Gallons of Water Pumped per Month	Average Number of Gallons Pumped per Day	Pounds of Coal Consumed per Month	Average No. Pounds of Coal Consumed per Day	Pounds of Coal Consumed per Month for Changing Boiler	Total Pounds of Coal Consumed per Month	Average Pounds of Pressure on Pump.
December, 1885	657	576,900	18,609	18,460,800	595,509	49,225	1,610	886	50,811	60
January, 1886	651½	507,700	16,377	16,246,400	524,077	49,055	1,816	966	50,021	60
February	594	474,300	18,972	15,177,600	607,304	48,905	1,956	1,009	49,914	60
March	687½	537,300	18,527	17,193,600	592,882	51,580	1,778	1,021	52,601	60
April	580½	466,300	18,652	14,921,600	596,864	39,607	1,650	1,146	40,753	60
May	694¼	601,600	20,744	19,251,200	663,838	46,750	1,612	1,562	48,312	60
June	286	373,600	31,333	11,955,200	993,266	24,751	2,062	1,001	25,752	60
July	775	774,100	24,971	24,771,200	779,071	52,898	1,706	901	53,799	60
August	191	215,500	26,937	6,893,600	862,000	13,855	1,732	1,028	14,883	60
September	720	611,300	20,376	19,561,600	652,080	49,117	1,638	1,701	50,818	60

OPERATION OF ENGINE NO. 2.

December, 1885	87	135,400	37,344	9,207,200	2,539,896	18,420	5,064	.....	18,420	60
January, 1886	92½	103,300	25,825	6,924,400	1,731,100	14,212	3,553	.....	14,212	60
February	78	83,470	25,680	5,675,960	1,746,432	10,921	3,360	.....	10,921	60
March	56½	53,100	22,752	3,665,200	1,570,800	7,552	3,240	.....	7,552	60
April	136½	127,100	22,416	8,442,800	1,489,896	17,364	3,048	.....	17,364	60
May	54	52,800	23,448	3,590,400	1,595,712	5,099	2,256	.....	5,099	60
June	434	470,200	25,299	32,033,600	1,771,440	64,559	3,504	.....	64,559	60
July	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
August	557	528,200	22,755	35,917,600	1,547,616	61,955	2,664	.....	61,955	60
September	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
October	10	11,300	27,120	768,400	184,416	1,322	.....	.....	1,322	60
November	27	26,900	23,884	1,829,200	1,625,952	3,816	3,384	.....	3,384	60
Total	1,532½	1,591,770	.....	108,240,360	.....	141,304	.....	.....	141,304	.....

NOTE—Coal for heating building is included in above statement.

MARTIN FEIST, Engineer.

INVENTORY OF TOOLS AND STOCK AT THE PUMPING STATION.

1 Vise.
2 Sets pipe dies and taps, from ¼ in. to 2 inches.
1 Set screw dies and taps, from ¼ in. to 1 inch.
2 Pipe cutters.
1 Pair pipe tongs.
1 24 inch pipe wrench.
1 12 " " "
1 20 " Coe's "
1 14 " " "
1 8 " " "
1 6 " " "
1 Portable blacksmith's forge.
1 Anvil.
2 Pairs of blacksmith's tongs.
1 Sledge hammer.
1 Hand hammer.
1 Soft hammer.
4 Files.
1 Saw.
1 Axe.
1 Hatchet.
1 1½ ton chain-block.
35 Feet 1 inch rope.
50 " 1¼ " rubber hose.
200 " ¾ " linen "
18 " 1 " steam "
3 Oil tanks.
2 1 quart oil cans.
2 Hand oilers.
1 Quart measure.
1 Steel coal barrow.
1 Sand barrow.
2 Coal scoops.
1 Fairbanks scales.
1 Grindstone.
6 Large tubular lanterns.
4 Small " "
1 Clock.
1 Writing-desk.
2 Chairs.
2 Ladders.
1 Step-ladder.
3 Brooms.
1 Tool cupboard.
1 Clothing cupboard.
1 Work bench.
6 Spittoons.
1 Ratchet brace and bit.
30 Tons hard coal.
1½ " soft "
1 Cord of slabs.
300 Lbs. of waste.
48 Gallons of cylinder oil.
52 " " engine "
30 " " kerosene "
5 " " boiler compound.
2 Lbs. candle wicking.
5 " hemp packing.
2 " plumbago.
15 " tallow.

TEST OF PUMPING MACHINERY.

ST. PAUL, December 14, 1885.

To the Board of Water Commissioners of the City of St. Paul:

GENTLEMEN:—We offer the following as a report of the test of the pumping machinery, furnished by E. P. Allis & Co., for the St. Paul Water Works:

By the requirements of the specifications, the test of capacity was to be made by weir measurement, and the test of duty was to be determined upon the basis of the actual amount of water pumped, as shown by the capacity test, and the coal used during the trial, without any deductions.

The conditions of the duty test were, that the steam used should not exceed 80 pounds, the piston speed should not exceed 200 feet per minute, and at the close of the trial, the fires, water in boiler, and the steam pressure, should be the same as at the commencement.

In accordance with these conditions, a proper weir was constructed, and, on the night of the 8th of December, the test was made of the capacity of the engines. Owing to the necessity of working in the night, as the water could not be cut off from the city except at this time, without great inconvenience, the wier test was made under some disadvantages.

Every proper precaution was taken, and we believe the results obtained are accurate.

The three million gallon engine was run two hours, and the million and a half engine was run one hour—an alarm of fire necessitating a stop at this time.

The area of the plunger of the three million engine, is 261.96 square inches, and the length of stroke 30 inches. Area of plunger of the million and a half engine is 153.85 square inches, and the length of stroke 24 inches.

From the measurement obtained, we find that the slip, or loss, of the three million engine is 2.5 per cent of the plunger displacement, and the slip of the million and a half engine is 4.8 per cent.

In testing the duty of the engines, each engine was run ten hours, under a water pressure equivalent to a static head of 150 feet, plus the friction in pipe.

The record for the three million gallon engine is as follows:

Total number of revolutions	22,141	
Displacement at each revolution	68.044-1000	gallons.
Total number of gallons pumped	1,506,562	"
The average water pressure	66.07	lbs.
Temperature of water	38°	
Weight per gallon	8.345	lbs.
Total number of pounds raised one foot	2,081,500,000	"
Total amount of coal used	2,216	"
Giving a duty of	93,929,000	ft. "
Less 2.5 per cent slip	2,348,000	" "
Corrected duty	91,581,000	" "
Capacity in 24 hours	3,615,740	gallons.
Piston speed	184.5	ft. per min.
Duty required	95,000,000	ft. lbs.

The record for the million and a half engine is as follows:

Total number of revolutions	27,583	
Displacement at each revolution	31.969-1000	gallons.
Total number of gallons pumped	881,800	"
The average water pressure	69.11	lbs.
Temperature of water	39°	
Weight per gallon	8.345	lbs.
Total number of pounds raised one foot	1,174,729,000	"
Total amount of coal used	1,293	"
Giving a duty of	90,853,000	ft. "
Less 4.8 per cent slip	4,361,000	" "
Corrected duty	86,492,000	" "
Capacity in 24 hours	2,016,320	gallons.
Piston speed	183.9	ft. per min.
Duty required	95,000,000	ft lbs.

We would also add, that the general working of the pumping engines was satisfactory. The cards taken from both engines were excellent. All the parts moved smoothly and well, and the whole machinery shows careful workmanship, and correct adjustments.

In conclusion we would say, that every effort was made by E. P. Allis & Co., to make a fair and correct test, and to turn over to the City the engines in every way equal to the specifications, and in all points, except the guaranteed duty, we believe they have fulfilled their contract.

Respectfully submitted,

H. H. HARRISON,
L. W. RUNDLETT,
Committee.

ATTORNEY AND ENGINEER'S REPORT.

ST. PAUL, Minn., November 30th, 1886.

the Honorable the Board of Water Commissioners:

GENTLEMEN:—During the year ending November 30th, 1886, I have made tlements and paid on claims for right of way, and the expenses of surveying l engineering, $2,578.50, an itemized statement of which is hereto attached, rked "A."

also append an inventory of property owned by the Board of Commissioners the office of the Engineer and Attorney, marked "B."

have also had preliminary surveys taken to show the contour of surface be-een Pleasant Lake in Ramsey County and Rice or Hardwood Creek, on Hopkins' m on the line of the St. Paul & Duluth Rail Road in Washington County. It hown by these surveys, that the water of Rice or Hardwood Creek can be ught by the way of the outlet of Bald Eagle Lake, gathering in the water of t stream; thence by Lake Amelia to Pleasant Lake; thence to Vadnais Lake. additional supply of water can be obtained by this route, at a reasonable ex-ise.

have also had preliminary surveys made of a line extending from Vadnais Lake, Grass and Snail lakes, thence running on the westerly side of Turtle Lake to the er or westerly lake of the Rice Lake chain of lakes in Township 31, North of nge 22 West, in Anoka County. By these levels it is demonstrated that the ole drainage of the Rice Lake water-shed, contains an area of one hundred l fifty-four (154) square miles, or, 98,560 acres, adding four-fifths to the present ply of water. This, together with the forty square miles of drainage now eived in the city, by the present completed works, would give a total of 194 are miles, and a total of 125,160 square acres.

When this connection is made, water sufficient for a population of at least ,000 people is available, without connection with Forest Lake, a supply still in yance.

The motion for a new trial in the case of Wilson & Rogers vs. The Board of ter Commissioners, referred to in my Report for 1885, is still in Court, unde-ed.

he case of J. B. Power against the Board, referred to in my Report for 1885, was d in June last. On the 8th of June judgment was entered against the Board the sum of $22,131.78.

the matter of the award of commissioners for land owned by H. D. Gurney, July 26, 1884, an appeal was allowed by the District Court on the 23d day of

March, 1885, nearly 18 months after the award was filed, from which order an appeal was taken to the Supreme Court. On the 25th of October the case was submitted on briefs, and at this date is undecided.

Respectfully submitted,

SIMEON P. FOLSOM,

Att'y and Engineer in Charge.

"A."

RIGHT OF WAY. ENGINEERING AND SURVEYING EXPENSES.

STATEMENT.

1885.		
Dec. 28.	St. Paul Book and Stationery Co.	$ 2 30
1886.		
Jan. 9.	Abstract of property in Anoka County	16 40
April 13.	E. F. Drake. Warranty Deed of 14 acres at Vadnais Lake	1400 00
" 22.	K. P. Cullen. Livery	14 00
" 24.	Catharine Hill. Warranty Deed. Strip of land fifty feet wide	75 90
" "	Catharine Hill. Warranty Deed to cure defect in Deed of May 24th, 1884	577 50
" 27.	Railroad fare and expenses to Hopkins' Station	4 85
" 30.	Merritt & Esterbrook. Engineering	169 80
May 12.	Register of Deeds. Recording three Deeds	2 25
" "	Clerk District Court. Copy of Order in case of Gurney vs. Board of Water Commissioners	1 50
June 12.	Abstract Clerk. Abstract of Vadnais Lake property	3 55
" 17.	Merritt & Esterbrook. Engineering	45 00
" "	S. A. Thompson. Services and board of Engineering force	9 25
" "	John Melrose. Board of Engineering force	1 40
July 8.	Geo. L. Wilson. 2 days' Engineering at Sandy Lake	10 00
" "	Clerk of District Court. Return to Supreme Court, in case of Gurney vs. Board of Water Commissioners	19 75
" 17.	K. P. Cullen. Livery	6 00
" "	Railroad fare and expenses to Centerville	3 00
Aug. 17.	D. Ramaley & Son. Printing Paper Book, Gurney vs. Board of Water Commissioners	45 60
" 20.	J. S. Kellogg. Making two Plats of Town 30, Ranges 22 and 23	10 00

Sept.	1.	Register of Deeds. Certified copy of Decree, Hill vs. Hill	75	
Oct.	1.	D. Ramaley & Son. 25 copies Defendant's Brief, in case of Gurney vs. Board of Water Commissioners	8 00	
"	"	H. Seydler. Engineering for September	100 00	
"	"	John Campbell, Rodman for September	38 50	
"	"	Otto Petterson. Chainman for September	33 00	
"	14.	K. P. Cullen. Livery	12 00	
"	"	Abstract Clerk. Abstracts	4 55	
"	27.	John Campbell. Rodman for October	3 00	
"	"	H. Seydler. Engineering for October	6 00	
"	"	L. M. Maxfield. Boarding Engineering party, at Pleasant Lake	40 20	
Nov.	1.	K. P. Cullen. Livery	12 00	
"	"	John Melrose. Boarding Engineers at Vadnais Lake	2 45	
		Total		$2,578 50

"B."

INVENTORY OF PROPERTY.

1 Young's Level, No. 5345.
4 50 foot steel tapes.
1 French curve.
1 Set of pins.
2 Poles.
1 Gardner & Sons Plain transit.
1 Gardner & Sons level.
1 100 foot steel chain.
1 Nickel-plated steel straight-edge.
2 Waste-paper baskets.
2 Paper weights.
2 Spittoons.
2 Inkstands.
2 India-ink slabs.
1 Letter press.
1 Drawing brush.
1 Cup.
1 Copying brush.
1 Pair of shears.
4 Sable brushes.
1 Paper protractor.
1 U. S. standard scale.
1 Revolving desk.
1 Square desk.
1 Large drafting-board.
1 Small drafting-board.
1 Set blue print apparatus, complete.
1 Revolving chair.
4 Common chairs.
1 Stool.
1 Step-ladder.
1 Small table.
1 County map.
1 City map.
1 United States map.
1 Map of City Water Works.
1 Book-case.
1 Nonious compass.
1 Boeringer level.

TREASURER'S REPORT.

CITY OF SAINT PAUL,
OFFICE OF THE CITY TREASURER, December 1st, 1886.

To the Honorable the President and Board of Water Commissioners of the City of St. Paul:

GENTLEMEN: I have the honor to submit to you the following report of the receipts and disbursements of this office from December 1, 1885, to December 1, 1886, as Treasurer of the Board of Water Commissioners:

RECEIPTS.

Balance, December 1, 1885, (exclusive of coupon account).....					$ 83,262 62
Dec. 21,	1885.	John Caulfield,	Sec'y.....	$ 5,000 00	
Dec. 28,	"	do	do	4,000 00	
Jan. 13,	1886.	do	do	15,000 00	
Jan. 28,	"	do	do	9,000 00	
Feb. 20,	"	do	do	1,000 00	
Feb. 24,	"	do	do	3,000 00	
Mar. 17,	"	do	do	3,000 00	
Mar. 22,	"	do	do	10,000 00	
Mar. 27,	"	do	do	4,000 00	
Apr. 16,	"	do	do	1,000 00	
Apr. 27,	"	do	do	1,000 00	
May 5,	"	do	do	20,000 00	
May 22,	"	do	do	1,000 00	
June 1,	"	do	do	2,000 00	
June 7,	"	do	do	3,000 00	
June 25,	"	do	do	5,000 00	
July 2,	"	do	do	5,000 00	
July 9,	"	do	do	16,000 00	
July 27,	"	do	do	16,000 00	
Aug. 3,	"	do	do	5,000 00	
Aug. 18,	"	do	do	2,000 00	
Aug. 27,	"	do	do	4,000 00	
Sept. 18,	"	do	do	10,000 00	
Sept. 27,	"	do	do	7,000 00	
Oct. 2,	"	do	do	25,000 00	
Oct. 5,	"	do	do	2,500 00	
Carried forward.....				185,506 00	

	Brought forward			$185,506 00	
Oct. 14,	1886,	John Caulfield, Sec'y		1,000 00	
Oct. 26,	"	do	do	5,000 00	
Nov. 1,	"	do	do	3,500 00	
Nov. 8,	"	do	do	1,500 00	
Nov. 9,	"	do	do	10,000 00	
Nov. 16,	"	do	do	2,400 00	
Nov. 27,	"	do	do	1,553 80	
					$210,453 80
Apr. 7,	"	W. E. Burton, County Treas., frontage tax..		1,031 34	
July 8,	"	" " " " "		17,942 71	
Nov. 16,	"	" " " " "		564 31	
					$ 19,538 26
	Total				$313,254 68

DISBURSEMENTS.

Dec., 1885.	Warrants paid	$ 17,783 77	
Jan. 1886.	" "	16,514 83	
Feb. "	" "	23,943 49	
Mar. "	" "	66,505 59	
Apr. "	" "	13,162 92	
May "	" "	20,553 10	
June "	" "	12,895 03	
July "	" "	26,618 22	
Aug. "	" "	14,149 55	
Sept. "	" "	30,714 13	
Oct. "	" "	45,380 81	
Nov. "	" "	22,104 87	
			$310,326 31

RECAPITULATION.

Total receipts	$313,254 68	
Total disbursements	$310,326 31	
Balance		$2,928 37
Add balance of old Water Company coupon account, (see Statement attached)		461 47
Total balance December 1, 1886		$3,389 84

Respectfully submitted,

GEORGE REIS,

Treas. ex-officio, Board of Water Commissioners.

OLD WATER COMPANY COUPON ACCOUNT.

RECEIPTS.

Dec. 1, 1885.	Balance on hand		$ 368 39
Jan. 2, 1886.	City Treasurer, to pay coupons	$6,448 00	
July 8, "	" " " "	6,416 00	
			12,864 00
Total			$13,232 39

DISBURSEMENTS.

Interest paid on Water Company debt,		
Jan. 18, 1886	$5,520 00	
Feb. 5, "	880 00	
Apr. 19, "	120 00	
July 16, "	2,720 00	
Aug. 6, "	3,260 00	
Aug. 20, "	100 00	
Sept. 27, "	40 00	
Nov. 1, "	80 00	
Total		$12,720 00

EXPENSE ACCOUNT.

Exchange and expressage on coupons paid in New York.		
Jan. 18, 1886	$22 08	
Feb. 5, "	3 55	
Apr. 19, "	47	
July 16, "	10 88	
Aug. 6, "	13 04	
Aug. 20, "	40	
Nov. 1, "	50	
		50 92
Total		$12,770 92

RECAPITULATION.

Total receipts	$13,232 39	
Total disbursements	$12,770 92	
Balance		$461 47

Paul P. Baker 1.97

SIXTH ANNUAL REPORT

OF THE

Board of Water Commissioners

OF THE

CITY OF ST. PAUL,

DECEMBER 1, 1887.

GLOBE JOB OFFICE,
E. HOWLEY & SON, PRINTERS,
1888.

SIXTH ANNUAL REPORT

OF THE

Board of Water Commissioners

OF THE

CITY OF ST. PAUL,

DECEMBER 1, 1887.

GLOBE JOB OFFICE,
D. RAMALEY & SON, PRINTERS,
1888.

OFFICERS

OF THE

CITY WATER WORKS,

DECEMBER 1, 1887.

BOARD OF WATER COMMISSIONERS.

J. F. HOYT, President;

C. W. GRIGGS,

C. D. GILFILLAN,

P. H. KELLY,

ROBT. A. SMITH, Mayor, member *ex-officio.*

JOHN CAULFIELD, Secretary.

JOHN B. OVERTON, Superintendent;

S. P. FOLSOM, Attorney;

MARTIN FEIST, Engineer of Pumping Station;

JOHN BEHRENS, Ass't Eng. " "

SIXTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE CITY OF ST. PAUL,

FOR THE YEAR ENDING NOVEMBER 30, 1887.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1887.

To the Honorable Common Council of the City of St. Paul:

GENTLEMEN:—Herein please find the Sixth Annual Report of the Board of Water Commissioners, being for the year ending November 30, 1887—consisting principally of detailed statements, by the officers of the Board, of the year's work in their respective departments—and made and reported at this time in pursuance of the law governing our action.

Some items of leading interest are here noted:

Bonded indebtedness of the City on account of the Water Works.....$1,860,000
Annual interest on same..... 93,300
Water mains laid this season.....20 miles, 1206 feet
Last season.....18 miles, 3334 feet
Total of mains now in.....103 miles, 34629 feet
Estimated to be laid the coming year, about twenty-six miles.
New water service connections this year.....1,072
Applications last season.....1,008
The previous season.....1,009
Total in to date 6,017

It is here seen, that of the whole number of water service connections made since the inception of the works, eighteen years ago, better than one-half of them have been put in within the last three years.

During the year family rates have been reduced once and meter rates twice. We think minimum and fair rates for water have now been reached.

We have now in use 249 meters, 868 fire hydrants and 967 gates or valves, and have had in use during the past summer 137 sprinkling hydrants, against 81 used the season before. This increased use of water through hydrants for sprinkling purposes has been found so to affect the pumps, that the building of a high service reservoir has been made necessary. A contract for this improvement has been entered into with Messrs. McArthur Bros., of this city. Its cost will be in the neighborhood of $130,000. Capacity, sixteen million gallons. Elevation above city datum, 310 feet.

Under the contract with Messrs. MacRitchie & Nicols, of Chicago, a sixteen-inch main was successfully laid during the summer in the bed of the river across from Broadway to State street. About five miles of mains in the Sixth ward are now supplied with water through this pipe.

Some money will have to be used the coming season in reaching out for an increased supply of water.

A careful perusal of the papers following this is earnestly asked.

Respectfully submitted,

J. F. HOYT,
C. W. GRIGGS,
ROBERT A. SMITH,
P. H. KELLY,
C. D. GILFILLAN,

SECRETARY'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1887.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—I respectfully submit to your Honorable Board my Sixth Annual Report, with accompanying Statements, showing in detail, under appropriate heads, the financial operations of the Water Department for the year ending November 30, 1887.

REVENUE.

Cash on hand December 1, 1886		$ 2,928 37
General water receipts	$135,386 59	
Miscellaneous receipts	31,009 50	
Connections, (street services)	27,880 91	
Shutting off and turning on water, (penalties)	257 00	
Repairs	62 58	
Extensions	2,782 43	
Bills payable	95,000 00	
Frontage tax	32,495 91	
Construction, (new supply)	122 50	
Bonds	200,000 00	
Interest	2,455 00	
		$527,452 42
Total		$530,380 79

DISBURSEMENTS.

General maintenance	$ 22,806 58	
Connections, (street services)	24,927 24	
Repairs	4,256 45	
Meters	2,637 60	
Extensions	225,443 70	
Construction	32,975 47	
Interest	84,394 96	
Bills payable	130,000 00	
Frontage tax	86 68	
Total		$527,528 68
Balance		$ 2,852 11

The general water receipts, including high and low service and meters, were $135,386.59, an increase of $20,525.38 over former year.

The miscellaneous water receipts, from builders, water carts, hydrant streams, filling cisterns and sprinkling streets, were $31,009.50.

Extension account is credited with $2,782.43, of which $987.10 was received from the sale of rock—730 loads at 85 cents, 731 loads at 50 cents, and two loads at 55 cents; $713.28 from H. H. Fuller, advanced by him for laying water mains in Clifton Park addition, to be refunded when water is turned on into said addition; $69.41 retained and unclaimed on pay rolls for the year; $633.75 from City of St. Paul, for lowering water mains on Jackson and Dale streets caused by change of grade; $240.88 from St. Paul & Northern Pacific R. R. Co., for lowering main pipe on Mississippi street at Trout Brook; $31.50 from Bohn M'f'g Co. for putting in private hydrant supply for their factory, and $106.51 from sale of scrap iron, etc.

Repair account is credited with $62.58, received on account of water main, being damages by sewer contractors.

Construction account is credited with $122.50, of which $75 was received for second hand portable engine sold to C. T. Corning; $10 for wood sold on reservoir grounds, and $37.50 from J. J. Lemon for right of way abandoned in Bass' subdivision of Collins' outlots.

INTEREST, REPAIRS, EXTENSION, GENERAL MAINTENANCE AND OTHER ACCOUNTS.

$84,394.96 has been paid on account of interest on bonds and loans; $4,256.45 for repairs of mains, hydrants and valves, caused principally by change of grade of streets, width of sidewalks and re-laying and re-setting hydrants; $22,806.58 on account of general maintenance, of which $8,252.24 was for maintaining the pumping station and gate house, of which $2,518.31 was for salaries; $5,240.55 for fuel; $255.31 for machine oil, waste and tallow; $39.37 for kerosene oil, and $198.40 for insurance, tools and repairs, leaving a balance of $14,554.34 for salaries of all officers, employes, office expense, stationery and all other expenses necessary in maintaining the works.

$2,637.60 was paid for meters; $24,927.24 for labor, lead pipe, brass goods and tools and stop-cock boxes for street service.

$225,443.70 was paid on account of city extensions, of which $124,425.08 was for cast iron pipe and specials, $73,937.76 for labor for laying water mains and for laying 16-inch main across the Mississippi river to supply the Sixth ward; $10,778 for fire hydrants, $6,185.80 for valves and valve boxes, $6,195.25 for pig lead and hemp packing, and $3,921.81 for tools, blacksmithing and supplies.

$32,975.47 was paid on account of construction (new supply), of which $23,-840.22 was in final settlement of the Hough & Gear contract for constructing sections 1 and 2 of conduit and waste weirs A and B in 1884, and balance for engineering, right of way and reservoir.

All pipe laying and other work has been done by day work as formerly. The pay rolls for the year amounted to $95,785.80, and the average monthly employes have been 212.

CONTRACTS.

Contracts have been let during the year amounting to $175,287.98, of which $174,002.67 has been paid, leaving balance due of $1,285.31, which has been retained from contractors for submerged pipe across the river, according to the contract, and which will be payable within six months after the work was completed.

BONDED DEBT.

The bonded debt of the city for water works purposes has been increased during the year by the issue of $200,000 of four and one-half (4½) per cent bonds.

The present bonded debt is $1,860,000, including $160,000 of the old water company's bonds assumed by the city. These latter bonds will be due January 1, 1889, and authority has been obtained from the Legislature to issue bonds to pay the same.

FRONTAGE TAX.

There has been collected during the year by the County Treasurer, $32,495.91 on account of frontage tax, of which $752.80 was for the tax for 1885, and $31,743.11 for 1886. $86.68 has been refunded and $363.26 abated on account of erroneous assessment, leaving a balance due of $2,471.49.

The frontage tax assessment for 1887 has been made and is now in the hands of the County Treasurer for collection amounting, to $46,388.88.

METERS.

There are in use 249 meters, an increase of 49. The revenue derived from this source was $36,366.50, an increase of $5,763.40 over former year. On account of the reduction in meter rates which goes into effect this date, I do not anticipate the receipts from this source the coming year to exceed $28,000.

SERVICES.

During the year 1072 applications have been made for service connections, of which 325 were on low or gravity service, and 747 on the high service. The receipts from this source have been $27,880.91, and disbursements $24,927.24. The total number of applications to date is 6,017, of which 3,825 are on low and 2,192 on high service, an increase of 4,008 since the city purchased the works in August, 1882.

PLUMBING.

Twenty-eight plumbers were granted licences during the year, and 1,610 permits were issued to them to do work in connection with the introduction and extension of water services, as against 1,497 in 1886, 1,454 in 1885, and 718 in 1884, and the inspection of all their work has been very satisfactorily performed by our inspector.

CONCLUSION.

I desire to return my thanks to the Board for their uniform kindness and assistance rendered me in the performance of my duties, and also to the Superintendent and to the employes for the prompt and satisfactory manner in which they have performed their several duties.

Respectfully submitted,

JOHN CAULFIELD,

Secretary.

TRIAL BALANCE DECEMBER 1, 1887.

St. Paul Water Works (original purchase)	$ 510,000.00	
Bond account		$1,860,000.00
General water receipts		506,841.38
Miscellaneous water receipts		85,424.95
Connection account (services)		4,013.13
Extension account	789,937.22	
General maintenance account	80,087.77	
Repair account	15,661.46	
Meter account	8,006.61	
Construction account (new supply)	803,429.00	
Interest account	311,074.31	
George Reis, City Treasurer	2,852.11	
Shutting off and turning on water		557.00
Frontage tax		64,211.79
Total	$2,521,048.48	$2,521,048.48

Receipts and Disbursements from December 1, 1886, to December 1, 1887.

Balance December 1, 1886			$ 2,928.37
General water receipts, high service	$ 22,246.71		
" " " low service	76,773.38		
" " " meters	36,366.50		
		$135,386.59	
Miscellaneous receipts, builders	$ 3,688.81		
" " water carts	405.55		
" " flushing sewers	1,054.80		
" " filling cisterns	1,543.84		
" " sprinkling streets	24,316.50		
		$ 31,009.50	
Connections—Services		27,880.91	
Extensions		2,782.43	
Shutting off and turning on water (penalties)		257.00	
Repairs		62.58	
Bills payable		95,000.00	
Construction—new supply		122.50	
Bonds		200,000.00	
Interest (accrued interest and premium)		2,455.00	
Frontage tax		32,495.91	
			$ 527,452.42
Total receipts			$ 530,380.79

DISBURSEMENTS.

General Maintenance—			
Salaries	$ 13,714.47		
Stationery and printing	716.59		
Miscellaneous	306.35		
Labor	1,339.07		
Material	5,977.12		
Stable { Feed	287.93		
Stable { Repairs	265.05		
		$ 22,806.58	
Connections—			
Labor	$ 13,464.41		
Pipe	7,567.99		
Brass goods and stop boxes	3,117.61		
Tools and miscellaneous	777.23		
		$ 24,927.24	
Repairs—			
Hydrants { Labor $3,601.71			
Hydrants { Material 85.89	$ 3,687.60		
Valves { Labor 25.53			
Valves { Material 5.30	30.83		
Mains { Labor 533.20			
Mains { Material 4.82	538.02		
		$ 4,256.45	
Meters—			
Labor	$ 765.02		
Freight and meters	1,872.58		
		$ 2,637.60	
Extensions—			
Pipe and special castings	$124,425.08		
Labor and contracts	73,937.76		
Tools and repairs of same	1,813.70		
Advertising	21.08		
Fire hydrants	10,778.00		
Valves	6,185.80		
Lead and hemp packing	6,195.25		
Lumber and Material	2,070.61		
Miscellaneous	16.42		
		$225,443.70	
Construction—New Supply—			
Labor and Contracts	$ 24,581.76		
Tools and Repairs of same	143.34		
Lumber and Material	522.12		
Engineering and Right of Way	4,181.53		
Miscellaneous and Building Account	657.05		
Reservoir	2,889.67		
		$ 32,975.47	
Interest		84,394.96	
Refunded Frontage Tax		86.68	
Bills Payable		130,000.00	
Total Disbursements			$527,528.68
Balance			$ 2,852.11

RECEIPTS AND DISBURSEMENTS FROM AUGUST 10, 1882, TO DECEMBER 1, 1887.

General Water Receipts, high service	$ 45,452.85		
" " low service	311,061.43		
" " meters	150,327.10		
		$506,841.38	
Miscellaneous receipts, builders	$ 13,697.84		
" " water carts	2,996.48		
" " flushing sewers & hydrant stre'ms	2,419.28		
" " filling cisterns	11,202.41		
" " sprinkling streets	55,108.94		
		$ 85,424.95	
Connections—Services		97,352.56	
Extension		12,042.07	
Shutting off and turning on water (penalties)		557.00	
Repairs		2,750.79	
Bills payable		493,000.00	
Construction—new supply		839.63	
Bonds		1,350,000.00	
Interest (accrued interest and premiums)		23,366.06	
Frontage tax		64,304.07	
Total receipts			$2,636,478.51

DISBURSEMENTS.

General Maintenance—				
Salaries			$51,209.11	
Stationery and Printing			2,959.37	
Miscellaneous			1,741.28	
Labor			7,544.97	
Material			14,322.91	
Feed			1,455.62	
Repairs			828.26	
				$80,061.52
Connections—				
Labor			49,727.79	
Pipe			27,073.43	
Brass Goods and Stop Boxes			13,697.75	
Tools and miscellaneous			2,839.48	
				$93,338.45
Repairs—				
Hydrants { Labor	$8,883.89			
Hydrants { Material	789.79	$9,673.68		
Valves { Labor	112.31			
Valves { Material	86.38	$198.69		
Mains { Labor	8,149.78			
Mains { Material	389.95			
		8,539.73	$18,412.10	
Meters—				
Labor		1,054.57		
Freight and meters		6,952.04		
			$8,006.61	
Extensions—				
Pipe and special castings		401,747.53		
Labor		268,789.57		
Tools and repairs of same		8,816.85		
Advertising		92.18		
Fire hydrants		12,988.00		
Valves		40,091.46		
Lead and Hemp packing		29,259.89		
Lumber and material		7,835.82		
Miscellaneous		2,597.56		
			$802,218.86	
Construction—New supply—				
Pipe and special castings		174,985.58		
Labor and contracts		447,418.32		
Tools and repairs of same		4,716.70		
Lumber and material		68,145.67		
Freight		9,342.66		
Engineering and right of way		82,910.15		
Miscellaneous and building account		13,647.46		
Reservoir		2,889.67		
			$804,056.21	
Interest			334,440.37	
Refunded frontage tax			92.28	
Bills payable			493,000.00	
Total disbursements				2,633,626.40
Balance				$2,852.11

802,218.86
804,056
1,666.27 4

STATEMENT SHOWING AMOUNT PAID THE CITY TREASURER AND WARRANTS DRAWN AGAINST SAME FROM DECEMBER 1, 1886, TO DECEMBER 1, 1887.

1886.					
December	1	Balance in treasury as per last report			$ 2,928.37
December	1	Cash	$ 2,500.00		
December	30	Cash	5,000.00		
1887.				$ 7,500.00	
January	8	Cash	20,000.00		
January	15	Cash	1,000.00		
January	28	Cash	5,000.00		
				26,000.00	
February	26	Cash		5,000.00	
March	22	Cash from County Treasurer, frontage tax	2,565.03		
March	25	Cash	3,000.00		
March	31	Cash	10,000.00		
				15,565.03	
April	4	Cash	25,000.00		
April	19	Cash	20,000.00		
April	28	Cash	6,000.00		
				51,000.00	
May	10	Cash	50,000.00		
May	12	Cash	4,000.00		
May	18	Cash	1,000.00		
May	28	Cash	2,000.00		
				57,000.00	
June	4	Cash	13,698.15		
June	7	Cash	5,000.00		
June	14	Cash	2,000.00		
June	24	Cash	3,000.00		
June	29	Cash	2,500.00		
				26,198.15	
July	1	Cash	2,000.00		
July	2	Cash	4,000.00		
July	7	Cash	10,000.00		
July	14	Cash from County Treasurer, frontage tax	29,268.22		
July	28	Cash, proceeds of $200,000 bonds	202,455.00		
				247,723.22	
August	29	Cash		40 000.00	
September	28	Cash		20,000.00	
October	27	Cash		15,000.00	
November	5	Cash	8,000.00		
November	10	Cash from County Treasurer, frontage tax	662.66		
November	25	Cash	5,000.00		
November	28	Cash	2,803.36	16,466.02	527,452 42
		Total			$ 530,380.79

WARRANTS DRAWN AGAINST SAME.

1886.					
December	1	Warrant No. 2,517	$ 4,804.91		
December	4	" " 2,518 to 2,539 inclusive	621.89		
1887.				$ 5,426.80	
January	3	" " 2,540	2,797.77		
January	8	" " 2,541 " 2,574 "	22,866.04		
				25,663.81	
February	1	" " 2,575	2,896.27		
February	5	" " 2,576 " 2,598 "	609.12		
February	23	" " 2,599	1,996.51		
				5,501.90	
March	1	" " 2,600	2,873.13		
March	9	" " 2,601 " 2,629 "	1,401.97		
				4,275.10	
April	1	" " 2,630	3,541.65		
April	4	" " 2,631	25,812.50		
April	6	" " 2,632 " 2,653 "	5,353.29		
April	16	" " 2,654	25,062.50		
				59,769.94	
May	2	" " 2,655	6,145.98		
May	6	" " 2,656 " 2,688 "	55,447.20		
				61,593.18	
June	1	" " 2,689 " 2,691 "	13,620.55		
June	6	" " 2,692 " 2,739 "	16,789.49		
June	17	" " 2,740 " 2,745 "	480.83		
				30,890.87	
July	1	" " 2,746	13,460.26		
July	12	" " 2,747 " 2,783 "	37,319.20		
July	15	" " 2,784 " 2,787 "	120,307.20		
				171,086.66	
August	1	" " 2,788	12,106.26		
August	3	" " 2,789 " 2,806 "	11,565.89		
August	16	" " 2,807 " 2,821 "	813.36		
August	25	" " 2,822 " 2,826 "	6,120.68		
				30,606.19	
September	1	" " 2,827	12,349,56		
September	9	" " 2,828 " 2,865 "	23,285.65		
				35,635.21	
October	1	" " 2,866	12,723.54		
October	7	" " 2,867 " 2,893 "	44,495.86		
October	21	" " 2,894 " 2,900 "	4,279.62		
				61,499.02	
November	1	" " 2,901	12,216.10		
November	5	" " 2,902 " 2,935 "	22,910.34		
November	10	" " 2,936 " 2,944 "	453.56		
				35,580.00	
					$527,528.68
		Balance in City Treasury			$2,852.11

BOND ACCOUNT,

BONDS AUTHORIZED BY LEGISLATURE.	Amount of Bonds Authorized.	Date of Bonds Issued.	When Due.	Amount of Bonds Issued.	Rate.
February 10, 1881	$600,000	Water Company's Bonds (Assumed by City)	Jan. 1, 1889	$160,000	8 per ct
January 26, 1883	500,000	City Bonds, June 1, 1882	30 years.	350,000	4 "
February 21, 1885	800,000	City Bonds, August 1, 1883	30 years.	150,000	5 "
January 31, 1887	200,000	City Bonds, April 1, 1884	25 & 30 ys	600,000	5 "
January 31, 1887 To redeem Water Company's Bonds	160,000	City Bonds, April 1, 1885	30 years.	400,000	5 "
		City Bonds, May 2, 1887	30 years.	200,000	4½ "
Total Authorized	$2,260,000	Total issued		$1,860,000	

DECEMBER 1, 1887.

INTEREST PAYABLE.										Annual Interest.
Dec. 1.	Jan. 10.	Feb. 1.	April 1.	May 2.	June 1.	July 10.	Aug. 1.	Oct. 1.	Nov. 2.	
.....	$6,400	.....	.....	.....	.....	$6,400	.....	.....	.....	$12,800
$7,000	.....	.....	.....	.....	$7,000	.....	.....	.....	.....	14,000
.....	.....	$3,750	.....	.....	.....	.....	$3,750	.....	.....	7,500
.....	.....	.....	$15,000	.....	.....	.....	.....	$15,000	.....	30,000
.....	.....	.....	10,000	.....	.....	.....	.....	10,000	.....	20,000
.....	.....	.....	.....	$4,500	.....	.....	.....	.....	$4,500	9,000
$7,000	$6,400	$3,750	$25,000	$4,500	$7,000	$6,400	$3,750	$25,000	$4,500	$93,300

16,000
15,000
6
4
13,10,

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS FROM DECEMBER 1, 1886, TO DECEMBER 1, 1887.

Date of Contract.	WITH WHOM AND FOR WHAT PURPOSE.	Am't of Contract.	Amount Paid.	Amount Due.
1886.	Vanderwarker & Acker, coal	$2,146.04	$2,146.04	
1887.				
Jan. 11	Holland Thompson Manf. Co. St Paul, brass goods	1,345.24	1,345.24	
" 17	R. D Wood & Co., Philadelphia, Pa., valves	4,114.04	4,114.04	
" "	R. D. Wood & Co., Philadelphia, Pa., fire hydrants	10,778.00	10,778.00	
" "	MacRitchie & Nicols, Chicago, Ill., submerged pipe	12,853.15	11,567.84	1,285.31
" 18	Bingham & Taylor, Buffalo, N. Y., stopcock and valve boxes	2,144.95	2,144.95	
" 19	Shickle, Harrison & Howard Iron Co., St. Louis, Mo., water pipe and specials	124,016.37	124,016.37	
Feb. 7	John Curran, St. Paul, Drayage	1,788.57	1,788.57	
April 9	Northwestern Shot Co, St. Paul, 20 tons pig lead	1,670.40	1,670.40	
" "	H. C. McNair, St. Paul, 20 tons of lead pipe	2,079.78	2,079.78	
June 8	Holland Thompson Manf. Co., St. Paul, 20 tons of lead pipe	2,111.89	2,111.89	
" 9	H. P. Rugg, St. Paul, 20 tons lead pipe	1,904.52	1,904.52	
" "	G. L. Hoyt, St. Paul, grubbing and clearing reservoir grounds	320.00	320.00	
" 15	Lehigh Coal & Iron Co., St. Paul, coal	3,121.11	3,121.11	
Aug. 16	Northwestern Lead Pipe Co., St. Paul, 25 tons pig lead	2,338.26	2,338.26	
" "	H. P. Rugg, St. Paul, 25 tons lead pipe	2,555.66	2,555.66	
	Total	175,287.98	174,002.67	1,285.31

AID

Number of Vouchers.	Month.	REPAIR VALVES.	
		abor.	Ma
2517 to 2539 incl...	December,	.....	.....
2540 to 2574 " ...	January,	.....	.....
2575 to 2599 " ...	February	.....	.....
2600 to 2629 " ...	March	.....	
2630 to 2654 " ...	April	.....	.....
2655 to 2688 " ...	May	.....	.....
2689 to 2745 " ...	June	.....	.....
2746 to 2787 " ...	July	$3.00	.....
2788 to 2826 " ...	August	.90	.....
2827 to 2865 " ...	September	.....	
2866 to 2900 " ...	October	5.75	.....
2901 to 2944 " ...	November	15.88	.....
Total	.....	$25.53	

HERS

TIME— From Aug. 10, 1882, to Dec.	$9.13	
From Dec. 1, 1882, to Dec. 1,	9.00	
From Dec. 1, 1883, to Dec. 1	16.50	
From Dec. 1, 1884, to Dec. 1	25.20	
From Dec. 1, 1885, to Dec. 1,	26.95	
From Dec. 1, 1886, to Dec. 1	25.53	
Total.....	$112.31	

STRUCTION—NEW SUPPLY.							
Lumber and Material.	Freight.	Engineering and Right of Way	Miscellaneous and Building Account.	Reservoir.	Interest.	Bills Payable.	Refunded Frontage Tax.
.....	.....	$173.11	$95.45	.....	.....	.....	.....
.....	.....	228.51	152.30	.....	$10,292.01	$10,000.00	.....
$191.00	.....	2,163.92	.....	.....	.....	.....	.....
.....	.....	201.66	18.50	.....	.....	.....	.....
.....	.....	252.66	.....	.....	25,875.00	25,000.00	.....
303.94	.....	181.66	21.10	.....	.....	.....	.....
9.18	.....	175.59	63.92	.....	7,017.50	.....	.....
.....	.....	.....	95.80	.....	7,882.98	95,000.00	.....
18.00	.....	166.66	.....	$380.00	3,759.35	.....	$86.68
.....	.....	166.66	.....	881.60	.....	.....	.....
.....	.....	276.94	.....	1,373.41	25,062.50	.....	.....
.....	.....	194.16	209.98	254.66	4,505.62	.....	.....
$522.12	.....	$4,181.53	$657.05	$2,889.67	$84,394.96	$130,000.00	$86.68

.....	.....	$1,558.80	$8.00	.....	$7,008.75	.....	.....
$23,550.20	$3,418.74	25,647.53	8,250.02	.....	28,371.39	$128,000.00	.....
41,164.20	5,916.00	42,013.66	1,722.59	.....	50,337.33	65,000.00	.....
2,395.86	7.92	4,790.76	2,394.20	.....	79,318.58	150,000.00	.....
513.29	.....	4,717.87	615.60	.....	85,009.36	20,000.00	5.60
522.12	.....	4,181.53	657.05	2,889.67	84,394.96	130,000.00	86.68
$68,145.67	$9,342.66	$82,910.15	$13,647.46	$2,889.67	$334,440.37	$493,000.00	$92.28

STATEMENT SHOWING AMOUNT DUE THE WATER BOARD ON DECEMBER 1, 1887.

	From City of St. Paul—		
	Water for fire purposes for six months to December 1, 1887	$17,319.37	
August 10, 1882	Repairing main on Lafayette ave. caused by sewer contractor	12.56	
" 29, "	Repairing gate box on East Seventh st. caused by paving contractor	5.25	
Sept. 6, "	Repairing main on Westminster street, caused by sewer contractor	1.75	
June 9, 1884	Repairing main on Robert street, caused by settling of service sewer	54.86	
Sept. 2, "	Repairing main on Pearl street, caused by settling of service sewer	20.21	
Sept. 11, "	Repairing main on Summit and Selby avenues, caused by sewer contractor	8.00	
May 1, 1885	Premium on $400,000 water bonds sold, dated April 1, 1885	22,018.00	
Nov. 18, 1886	Balance due for repairing main on Becker Place, caused by sewer contractor	10.00	
Nov. 1, 1887	For flushing sewers, etc	242.10	
March 7, "	Repairing Beaumont street main at De-Soto street, caused by settling of sewer ditch	66.09	
July 23, "	Expense of relaying main on Minnehaha street, caused by change of grade	129.31	
July 23, "	Expense of relaying main on Jesse street, caused by change of grade	184.12	
August 3, "	Putting in water service for flush tank for sewer, corner Marshall avenue and St. Albans street	11.37	
August 3, "	Putting in water service for flush tank for sewer, corner Selby and Farrington avenues	11.37	
August 3, "	Putting in water service for flush tank for sewer corner St. Peter and Tilton streets	11.37	
August 14, "	Repairing water main, corner Oak and Sixth streets, caused by sewer contractor	30.47	
Nov. 1, "	Water for flush tanks	274.16	
			$40,410.36
Applicat'n.	From Board of Fire Commiss'ners—		
1221	Engine house, Tenth and Broadway water rent to July 1, 1885	$90.65	
303	Engine house, St. Peter street, water rent to July 1, 1885	98.00	
359	Engine house, Wakouta street, water rent to July 1, 1885	57.70	
1243	Engine house, Ramsey and Leech streets, water rent to July 1, 1885	75.90	
2410	Engine house Central Hall, Eighth and Minnesota streets, water rent to July 1, 1885	8.50	
	Repairing hydrants	31.05	
			$451.80
Balance frontage tax assessment for 1884, 1885 and 1886		$2,471.49	
Frontage tax assessment for 1887		46,388.88	
			$48,860.37
From builders			500.00
From street sprinkling contractors			4,000.00
From service connections			1,500.00
Total			$95,722.53

List of Vouchers Paid from December 1, 1886, to December 1, 1887.

DECEMBER, 1886.

No of Voucher.	Name.	Claim.	Amount.
2517	John Caulfield, Secretary	Pay roll for November	$4,804.91
2518	Leonard & Ellis, Chicago, Ill	Cylinder oil	48.00
2519	Challenge Manufacturing Co., Terre Haute, Ind	Boiler solution	11.25
2520	C. Collins, St. Paul	Blacksmithing	75.05
2521	J. G. Duggan & Bro., St. Paul	Blacksmithing	43.95
2522	Rogers, Willis & Co., St. Paul	Lead and iron pipe	20.12
2523	Slater & Riley, St. Paul	Horse shoeing	4.60
2524	Robert Seeger, St. Paul	Gasoline	3.60
2525	Geo. J. Mitsch & Co., St. Paul	Oil meal and varnish	5.10
2526	St. Paul Book and Stationery Co.,	Stationery	8.88
2527	Farwell, Ormun & Jackson, St. P.	Hardware	3.95
2528	Schleck Bros, St. Paul	Damages by blasting to 933 West Seventh street	10.00
2529	Minnesota Coffee and Spice Co	Job printing	49.50
2530	Robinson & Cary, St. Paul	Ludlow valve and shovels	6.02
2531	Pioneer Press Co., "	Two application books	11.25
2532	P. H. Kelly Mer'tile Co., "	Powder, fuse and oil	49.64
2533	H. P. Rugg & Co., "	Steam and water pipes, etc	144.46
2534	E. McNamee, "	Feed	11.49
2535	W. E. Magraw, "	Daily Globe, September 29 to December 31, 1886	2.70
2536	Griggs & Foster, "	Wood	12.00
2537	W. F. Bailey, "	Brass goods	61.16
2538	St. Paul Brass Works, "	Block tin and repairs	36.07
2539	Thos. Brennan, "	Lumber	3.10
	Total		$5,426.80

JANUARY, 1887.

No.	Name.	Claim.	Amount.
2540	John Caulfield, Secretary, St. P'l	Pay roll for December, 1886	$2,797.77
2541	Geo. Reis, City Treasurer, " ...	Interest due Jan. 10, 1887	6,416.00
2542	Geo. Reis, " " " ...	Interest due Feb. 1, 1887	3,759.35
2543	First National Bank, " ...	Note of Nov. 9, '86, and int.	10,116.66
2544	The Globe Publishing Co., " ...	Advertising for pipe, gates, etc	15.64
2545	Corlies, Chapman & Drake, " ...	Storm sash for gate-house	10.30
2546	Fairbanks, Morse & Co., " ...	Six-ton scales for pump house	125.00
2547	N. Hardy, " ...	Six day's rent of horse	6.00
2548	M. F. Fielding, " ...	Re-laying wood pavement	45.27
2549	Martin Feist, " ...	Lunch, men cleaning conduit	4.15
2550	J. J. Watson & Bro., " ...	Insurance on shop and barn	15.00
2551	J. B. Sanborn, " ...	Costs and disbursements case Gurney vs. Board	55.50
2552	Boeringer & Sons, " ...	Repairs on mapping pens, etc.	2.00
2553	Vanderwarker & Acker, " ...	Estimate No. 1, coal	1,351.87
2554	J. G. Duggan & Bro., " ...	Blacksmithing, repairs for Dec	44.45
2555	Richard Price, " ...	Veterinary services	13.25
2556	St. Paul Brass Works, " ...	Repairs	15.70
2557	Rogers & Ordway, " ...	Pipe fittings	5.53
2558	John Bell, " ...	Cement	11.20
2559	Henry E. Wedelstaedt, " ...	Stationery	17.45
2560	P. H. Kelly Mercantile Co., " ...	Powder, fuse and oil	61.77
2561	St. Paul Book and Stationery Company	Stationery	5.64
2562	Simons & Bowers, " ...	Horse shoeing	.50
2563	H. P. Rugg & Co., " ...	Pipe fittings	1.07
2564	Pioneer Press Co., " ...	One lead book	8.50
2565	Robinson & Cary " ...	Gasket packing	1.47
2566	D. Ramaley & Son, " ...	Job printing	27.00
2567	Scribner-Libby Co., " ...	Two iron shutters for shop	17.00
2568	E. Mc Namee, " ...	Feed	4.00
2569	Pendergrast Bros., " ...	Cleaning chimneys	.60
2570	Taylor & Craig Co., " ...	Repairing door	.50
2571	St. Paul Rubber Co., " ...	One pair hip boots	4.00
2572	Arnold & Uhler, " ...	Blacksmithing	4.30
2573	John Caulfield, Secretary, " ...	Stamps, freight paid, etc	28.37
2574	National Meter Co., " ...	Seventeen meters	671.00
	Total		$25,663.81

FEBRUARY, 1887.

No.	Name.	Claim.	Amount.
2575	John Caulfield, Secretary, St. P'l	Pay roll for January	$2,896.27
2576	R. D. Wood & Co., Philadelphia, Pennsylvania	Extra hydrant fixtures	23.00
2577	Challenge Manfacturing Co., Terre Haute, Indiana	28 gallons boiler compound	29.75
2578	P. V. Dwyer & Bro., St. Paul	Extra strong lead pipe	11.94
2579	Farwell, Ozmun & Jackson, "	Tools	15.06
2580	Geo. J. Mitsch & Co., "	Soap, flax seed, etc	2.25
2581	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	48.08
2582	P. F. Fitzgibbon, "	Repairing windows 985 W. 7	2.25
2583	J. G. Duggan & Bro.,, "	Blacksmithing	37.90
2584	Slater & Riley, "	Blacksmithing	1.50
2585	Vanderwarker & Acker, "	Fuel	30.00
2586	Robinson & Cary, "	Steam packing and trap	23.88
2587	Rogers & Ordway, "	Pipe fittings	1.17
2588	Pioneer Press Co., "	Six months daily to Jan. 1, '87	4.00
2589	Die Volkszeiting, "	Advertising	1.80
2590	J. F. Buechner, "	Tool sharpening	27.80
2591	E. McNamee, "	Feed	13.89
2592	John Bell, "	Cement	22.40
2593	H. P. Rugg & Co., "	Pipe fittings	24.89
2594	Griggs & Foster, "	Fuel	32.00
2595	Chas. Friend, "	Stable fixtures and repairs	8.45
2596	Donaldson, Ogden & Co., "	Lantern fixtures	3.18
2597	John Caulfield, Secretary, "	Cash advanced for petty bills	52.93
2598	Wm. McTeague, "	1 intake pipe for Vadnais lake	191.00
2599	John B. Sanborn, attorney for H. D. Gurney	Am't of verdict in dis't court	1,996.51
	Total		$5,501.90

MARCH, 1887.

No.	Name.	Claim.	Amount.
2600	John Caulfield, Secretary, St. Paul	Pay roll for February	$2,873.13
2601	Bingham & Taylor, Buffalo, N. Y.	Valve and stop boxes	785.00
2602	Jno. W. Henion, Supt., Minneapolis	2½ days diver and suit	27.50
2603	Stockton & Lindquist, St. Paul	2,000 sewer brick	20.00
2604	Hudner & Regelsberger, "	Labor on connection, 370 Carroll street	7.25
2605	John Melrose, "	Labor and board on intake pipe	17.25
2606	Keating & McElrath, "	Livery	2.00
2607	Michael Lynch, "	Damages from hydrant str'm	12.00
2608	P. Kelly "	Sharpening tools	27.50
2609	H. P. Rugg & Co., "	Pipe fittings	1.39
2610	Vanderwarker & Acker "	Fuel	30.00
2611	Farwell, Ozmun & Jackson "	Nails and tools	4.80
2612	Slater & Riley, "	Horseshoeing	2.75
2613	Geo. J. Mitsch & Co., "	Gasoline, etc	1.75
2614	D. Ramaley & Son, "	Job Printing	7.80
2615	Griggs & Foster, "	Fuel	56.75
2616	Thomas Brennan, "	Lumber	10.50
2617	J. G. Duggan & Bro., "	Blacksmithing	69.40
2618	Adam Decker, "	Tools	.45
2619	Goodyear Rubber Co., "	Hose	5.10
2620	John Bell, "	Cement	22.40
2621	Rogers & Ordway, "	Pipe fittings	5.85
2622	E. McNamee, "	Feed	17.52
2623	W. E. Magraw, "	3 months Globe to April 1	2.55
2624	Henry E. Wedelstaedt, "	Stationery	8.10
2625	Taylor & Craig Co., "	Book case, oil stand, etc	42.00
2626	John Curran, "	Estimate No. 1, drayage	157.08
2627	P. H. Kelly Mercantile Co. "	Powder, fuse and oil	31.13
2628	Robinson & Cary, "	Jack screw and steel	4.15
2629	John Caulfield, Secretary, "	Bills paid, stamps, gas, etc	22.00
	Total		$4,275.10

APRIL, 1887.

No.	Name.	Claim.	Amount.
2630	John Caulfield, Secretary, St. Paul	Pay roll for March	$3,541.65
2631	First National Bank, "	Note of Newport & Peet and interest	25,812.50
2632	R. D. Wood & Co., Philadelphia, Pa.	Estimate No. 1, hydrants	2,967.00
2633	R. D. Wood & Co., Philadelphia, Pa	Estimate No. 1, valves	691.15
2634	Bingham & Taylor, Buffalo, N. Y.	Estimate No. 2, valve and stop boxes	772.45
2635	Crosby Steam Gage Co., Boston, Mass	Six springs for 1½ angle relief valves	9.00
2636	Vanderwarker & Acker, St. Paul	Estimate No. 2, coal	334.73
2637	St. Paul & Duluth R'y Co., St. Paul	84 lbs old rail at 1½	1.26
2638	John Curran, St. Paul	Estimate No. 2, drayage	254.74
2639	Farwell, Ozmun & Jackson, St. Paul	Tools	2.13
2640	Geo. J. Mitsch & Co., St. Paul	Drugs	5.64
2641	Strong, Hackett & Co., "	Six dozen pick handles	9.00
2642	Joseph Bulena "	Sharpening tools	57.40
2643	George Mitsch, "	Blacksmithing	7.13
2644	St. Paul Book & Stationery Co., St. Paul	Stationery	4.05
2645	J. G. Duggan & Bro., St. Paul	Sharpening tools	41.00
2646	Myers & Carpenter, "	One office clock	4.50
2647	H. P. Rugg & Co., "	Pipe fittings	4.78
2648	Thomas Brennan, "	Fencing lumber	1.90
2649	H. E. Wedelstaedt, "	Stationery	9.80
2650	John Bell, "	Louisville cement	31.55
2651	Pioneer Press Co., "	Blank books	65.75
2652	Griggs & Foster, "	Wood	22.50
2653	St. Paul Foundry Co., "	Manholes and plugs	55.83
2654	Geo. Reis, City Treasurer, "	Interest on $1,000,000 bonds to April 1, 1887, and exchange	25,062.50
	Total		$59,769.94

MAY, 1887.

No.	Name.	Claim.	Amount.
2655	John Caulfield, Secretary, St. Paul	Pay roll for April	$6,145.98
2656	J. C. Curran, " ...	Estimate No. 3, drayage	86.96
2657	C. M. Foote & Co., Minneapolis...	One state map	15.00
2658	Board of Fire Commissioners, St. Paul	140 feet old hose	35.00
2659	Stockton, Lindquist & Co., St. Paul	2,000 sewer brick	20.00
2660	Simpson & Powers, St. Paul...	Ink	1.25
2661	M. F. Kennedy & Bros., " ...	Two wad cutters for taps	1.00
2662	F. G. Draper & Co., " ...	Tools	.85
2663	St. Paul Book & Stationery Co., St. Paul	Stationery	5.85
2664	Farwell, Ozmun & Jackson, St. Paul	Tools	16.44
2665	H. P. Rugg & Co., St. Paul...	Pipe and fittings	56.85
2666	Jos. Bulena, " ...	Sharpening tools.	31.00
2667	H. Mueller & Sons, Decatur, Ill...	5½-inch corp. drills and taps..	15.94
2668	Pioneer Press Co., St. Paul...	Job printing	56.50
2669	Henry E. Wedelstaedt, " ...	Stationery	4.77
2670	Slater & Riley, " ...	Horseshoeing	6.00
2671	Rogers & Ordway, " ...	Tools and fittings	2.05
2672	J. G. Duggan & Bro., " ...	Sharpening tools and repairs	126.05
2673	P. Kelly, " ...	" " " "	16.60
2674	Holland & Thompson Manufacturing Co., St. Paul	Estimate No. 1, brass goods...	818.81
2675	John Martin Lumber Co., St. Paul	Lumber	16.00
2676	N. L. Bryant, " ...	Shade trees pump house	21.10
2677	Griggs & Foster, " ...	Wood	24.50
2678	E. McNamee, " ...	Feed	10.50
2679	Robinson & Carey, " ...	Shovels, gasket packing, etc...	454.04
2680	St. Paul Brass Works, " ...	Block tin, brass goods and repairs	169.33
2681	D. Ramaley & Son, " ...	1,000 envelopes and printing	5.15
2682	John Caulfield, Secretary, " ...	Cash advanced on freight, etc.	62.99
2683	Paul Milette, New Canada	200 blasting timbers	40.00
2684	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 1, pipe and specials	48,392.24
2685	R. D. Wood & Co., Philadelphia, Pa	Estimate No. 2, hydrants	3,741.00
2686	National Meter Co., New York	Meters	643.45
2687	P. H. Kelly Mercantile Co., St. Paul	Powder, fuse and oil	141.69
2688	St. Paul Foundry Co., " ...	Tramway at pump house, etc.	408.29
	Total		$61,593.18

JUNE, 1887.

No.	Name.	Claim.	Amount.
2689	John Caulfield, Secretary, St. Paul	Pay roll for May	$9,870.37
2690	Northwestern Shot Co., " ...	Estimate No. 1, pig lead	1,670.40
2691	H. C. McNair, " ...	Estimate No. 1, lead pipe	2,079.78
2692	The Erie Telegraph & Telephone Co. St. Paul	Rent 1 year to May 1, 1888	60.00
2693	Fielding Bros., St. Paul	Repaving for May	172.63
2694	S. A. Thompson, Mound View	Burying dead horse	6.00
2695	F. G. Draper & Co., St. Paul	Hardware	4.50
2696	Auerbach, Finch & Van Slyck, St. Paul	Mounting map	3.93
2697	Martin Feist, St. Paul	Meals for men clean'g conduit	3.75
2698	Craig, Larkin & Smith, St. Paul	3 doz. red lantern globes	21.75
2699	Pioneer Press Co., " ...	Advertising hose regulations	42.00
2700	St. Paul Dispatch Co., " ...	" " "	26.00
2701	John Bell, " ...	Louisville cement	66.50
2702	Robert Seeger, " ...	Gasoline	7.20
2703	Donaldson, Ogden & Co., " ...	Globes and lanterns	9.43
2704	E. McNamee, " ...	Feed	15.93
2705	Slater & Riley, " ...	Horseshoeing	7.15
2706	Nicols & Dean, " ...	1 stone sledge	2.96
2707	Leonard & Ellis, Chicago, Ill	1 barrel cylinder oil	48.50
2708	Chapman Valve Manufacturing Co., Boston, Mass	Valves	304.92
2709	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 2, pipe and specials	5,408.69
2710	R. D. Wood & Co., Philadelphia	Estimate No. 3, hydrants	516.00
2711	R. D. Wood & Co., "	Estimate No. 2, valves	1,070.05
2712	George Reis, City Treasurer	Interest to June 1, 1887, on $350,000 of 4 per cent b'nds	7,017.50
2713	Holland & Thompson Manufacturing Co., St. Paul	Estimate No. 2, brass goods	487.02
2714	St. Paul Rubber Co., St. Paul	Rubber goods	27.35
2715	Richard Price, " ...	Veterinary services	9.00
2716	The Globe Publishing Co. " ...	Advertising	65.39
2717	K. P. Cullen " ...	Team to Pleasant Lake, etc	13.00
2718	John C. Curran, " ...	Estimate No. 4, drayage	92.64
2719	Robinson & Cary, " ...	Valves, tools, etc	114.71
2720	Joseph Bulena, " ...	Tool sharpening	21.35
2721	Farwell, Ozmun, Kirk & Co. " ...	Tools	15.04
2722	Rogers & Ordway, " ...	Tools and pipe fittings	11.20
2723	Duggan Bros., " ...	Blacksmithing	26.10
2724	Geo. J. Mitsch & Co. " ...	Drugs and oil	6.51
2725	Rogers & Davis, " ...	Repairs of engines	9.18
2726	Fielding Bros., " ...	Repaving	274.29
2727	P. Kelly, " ...	Tool sharpening	21.70
2728	St. Paul Stone Co., " ...	Repairing Hexagon sidewalks	14.00
2729	H. P. Rugg & Co., " ...	Pipe and fittings	354.64
2730	Geo. Mitsch, " ...	Blacksmithing	11.80
2731	D. Ramaley & Son, " ...	Job printing	11.80
2732	Adam Decker, " ...	Fence wire, etc	2.62
2733	Scribner-Libby Co., " ...	Repairing roof of office	3.00
2734	Wm. Gardam & Son, New York	Repairing transit	108.80
2735	St. Paul Brass Works, St. Paul	Block tin and repairs	110.65
2736	Lehigh Coal & Iron Co., " ...	Wood	69.05
2737	Thomas Brennan, " ...	Lumber	6.50
2738	John Caulfield, Secretary, " ...	Bills paid, freight, etc	66.76
2739	D. E. Talbert, " ...	Repairs engineers house	20.00

JUNE—(Continued.)

No.	Name.	Claim.	Amount.
2740	John Melrose, St. Paul	300 blasting timbers	60.00
2741	P. H. Kelly Mercantile Co. " ...	Powder, fuse and oil	163.99
2742	Moeller & Toensing, " ...	Six posts turned	4.50
2743	Griggs Bros., " ...	1 horse	225.00
2744	St. Paul Foundry Co., " ...	13 6-inch sleeves	19.24
2745	Miller & Doyle, " ...	Brick work, pump house	8.10
	Total		$30,890.87

JULY, 1887.

No.	Name.	Claim.	Amount.
2746	John Caulfield, Secretary, St. P'l	Pay roll for June	$13,460.26
2747	H. Curran, " ...	Estimate No. 5, drayage	120.50
2748	Ed. McNamee, " ...	Feed	24.33
2749	C. Gotzian & Co., " ...	Rubber boots	44.94
2750	Pioneer Press Co., " ...	Job work	16.25
2751	Kenney Bros., " ..	Repairing boilers	8.60
2752	The Engel-Dries Co., " ...	Blank books	20.75
2753	J. W. Cuuningham & Co., " ...	2,000 envelopes and printing	5.75
2754	Vanderwarker & Acker, " ...	Coal	399.54
2755	K. P. Cullen, " ...	Horse and buggy to reservoir	3.00
2756	P. H. Kelly Mercantile Co., " ...	Powder, fuse and oil	60.65
2757	Farwell, Ozmun & Jackson, " ...	Nails and tools	5.65
2758	Slater and Riley, " ...	Horseshoeing	5.75
2759	H. E. Wedelstaedt, " ...	Stationery	4.62
2760	John Bell, " ...	Cement	24.75
2761	W. E. Magraw, " ...	Three months daily to July 31	3.40
2762	Robinson & Cary, " ...	Hose, rope and pick handles..	38.24
2763	St. Paul Brass Works, " ...	Block tin, brass goods, repairs	71.90
2764	H. P. Rugg & Co., " ...	Pipe and fittings	449.10
2765	R. D. Wood & Co., Philadel'a, Pa.	Estimate No. 3, valves	874.00
2766	R. D. Wood & Co., " " ...	Estimate No. 4, hydrants	673.00
2767	Geo. Reis, City Treasurer, St. Paul	Interest to July 10, 1887	6,416.00
2768	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 3, pipe & specials	19,301.31
2769	Robert Seeger, St. Paul	Gasoline	3.60
2770	Joseph Bulena, " ...	Tool sharpening	40.35
2771	J. G. Duggan & Bro., " ...	Repairs and sharpening tools	56.35
2772	Holland & Thompson Man'f Co.,	Lead Pipe	39.41
2773	Taylor & Craig Co., St. Paul	Desk and pigeon holes for office	52.15
2774	Thomas Brennan, " ...	Lumber	16.80
2775	Holland & Thompson Man'f Co..	Estimate No. 1, lead pipe	2,111.89
2776	H. P. Rugg, St. Paul	Estimate No 1, pig lead	1,904.52
2777	Rogers & Ordway, " ...	2 inch galv. pipe and fittings..	218.08
2778	Geo. J. Mitsch & Co., " ...	Paints, oils, etc	40.65
2779	Pioneer Press Co.. " ...	Subscription to July 1, 1887	4.00
2780	Chas. Friend, " ...	Harness repairing, etc	18.65
2781	Lehigh Coal and Iron Co., " ...	Estimate No. 1, coal	2,817.72
2782	R. D. Wood & Co., Phila. Pa. ...	Estimate No. 4, valves	1,079.00
2783	R. D. Wood & Co., Phila. Pa. ...	Estimate No. 5, hydrants	344.00
2784	The Commercial Nat. Bank, St. P	Note of May 10, '87, and int..	50,641.76
2785	Second National Bank, " ...	Note of April 19, '87, and int	20,334.35
2786	First National Bank; " ...	Note of April 4, '87, and int...	25,490.96
2787	First National Bank, " ...	Judgment in favor of Hough & Gear, and interest	23,840.22
	Total		$171,086.66

AUGUST, 1887.

No.	Name.	Claim.	Amount.
2788	John Caulfield, Secretary, St. P'l	Pay roll for July	$12,106.26
2789	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 4, pipe, specials	6,446.48
2790	National Meter Co., New York	One 4 inch Empire Meter	213.50
2791	Prince & Shandrew, St. Paul	Insurance	30.00
2792	John Rogers, Jr., & Bro., "	Insurance	20.00
2793	J. C. Curran, "	Estimate No. 6, drayage	244.22
2794	D. Ramaley & Son, "	Job printing	32.75
2795	Maendler Bros., "	One 20 inch floor brush, pump house	5.00
2796	R. Price, "	Veterinary services	2.50
2797	Fielding Bros., "	Re-laying pavement	319.47
2798	E. McNamee, "	Feed	10.75
2799	Geo. Reis, City Treasurer, "	Interest and exchange on $150,000.00 5 per cent bonds	3,759.35
2800	G. L. Hoyt, "	Estimate No. 1 and final, grubbing at reservoir	320.00
2801	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	48.22
2802	J. G. Duggan & Bro., "	Blacksmithing	39.60
2803	Geo. Mitsch, "	Blacksmithing	47.55
2804	Slater & Riley, "	Blacksmithing	6.40
2805	The Pioneer Press Co., "	Blank books	17.00
2806	Henry E. Wedelstaldt, "	Stationery	3.10
2807	St. Paul Brass Works, "	Block tin, brass goods, etc	100.88
2808	H. P. Rugg & Co., "	Pipe and fittings	47.64
2809	Geo. J. Mitsch & Co., "	Paints, oils, etc	6.00
2810	Robert Seeger, "	Gasoline	3.60
2811	Farwell, Ozmun & Jackson, "	Rope, nails, etc	14.69
2812	Robinson & Cary, "	Hemp packing, etc	149.17
2813	P. Kelly, "	Blacksmithing	2.75
2814	Joseph Bulena, "	Blacksmithing	5.10
2815	P. Kerst, "	Blacksmithing	6.25
2816	Rogers & Ordway, "	Pipe, fittings, etc	4.13
2817	Adam Decker, "	Two saws	2.00
2818	St. Paul Rubber Co., "	Rubber boots, matting, etc	38.21
2819	G. L. Hoyt, "	Clearing and grubbing right of way to reservoir lot	60.00
2820	R. D. Ducharme, "	Cleaning Phalen Creek	15.00
2821	Lehigh Coal and Iron Co., "	Estimate No. 2, coal	357.94
2822	John Caulfield, Secretary, "	Bills paid June 8, to Aug. 22, 1887	102.61
2823	John Caulfield, Secretary, "	Refunded frontage tax	86.68
2824	Chapman Valve Manufacturing Co., Boston, Mass	Valves	155.84
2825	C. D. Gilfillan, St. Paul	One Concord buggy	77.50
2826	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 5, pipe & specials	5,698.05
	Total		$30,606.19

SEPTEMBER, 1887.

No.	Name.	Claim.	Amount.
2827	John Caulfield, Secretary, St. Paul	Pay roll for August	$12,349.56
2828	John Curran, " ...	Estimate No. 7, drayage	157.23
2829	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 6, pipe	9,899.07
2830	R. D. Wood & Co., Philadel'ia, Pa	Estimate No. 6, hydrants	1,290.00
2831	R. D. Wood & Co., " ...	Estimate No. 5, valves	274.88
2832	Union Water Meter Co., Worcester, Mass	Two Meters	46.00
2833	Henry R. Worthington, N. Y	Meters	108.45
2834	H. P. Rugg, St. Paul	Estimate No. 1, lead pipe	2,555.66
2835	Northwestern Lead Pipe Co., " ...	Estimate No. 1, pig lead	2,338.26
2836	Slater & Riley, " ...	Horse shoeing	9.25
2837	Joseph Bulena, " ...	Blacksmithing	5.40
2838	C. Collins, " ...	Blacksmithing	77.10
2839	Chas. Friend, " ...	Harness and repairs	24.10
2840	Craig, Larkin & Smith, " ...	Red lantern globes	6.50
2841	St. Paul Book and Stationery Co.	Stationery	2.85
2842	Pioneer Press Co., St. Paul	Six frontage tax books	10.50
2843	H. P. Rugg & Co., " ...	Pipe and fixtures	3.83
2844	E. McNamee, " ...	Feed	19.21
2845	Geo. J. Mitsch & Co., " ...	Drugs, oils and paints	3.10
2846	P. H. Kelly Mercantile Co., " ...	Powder and fuse	68.55
2847	D. Ramaley & Son., " ...	Job printing	7.30
2848	Rogers & Ordway " ...	Pipe fittings	2.43
2849	Farwell, Ozmun, Kirk & Co., " ...	Tools	11.30
2850	St. Paul Brass Works, " ...	Brass goods	40.75
2151	J. G. Duggan & Bro., " ...	Blacksmithing	50.45
2852	H. E. Wedelstaldt, " ...	One eyelet punch	2.50
2853	Nicols & Dean, " ...	Half dozen scrapers, etc	37.30
2854	John Martin Lumber Co., " ...	Lumber	184.93
2855	Johnathan Warden, St. Louis	Inspecting pipe at foundry	398.50
2856	J. T. Fanning, St. Paul...	Professional services	174.75
2857	Fairbanks, Morse & Co., " ...	One tank for reservoir	60.00
2858	Robert Seeger, " ...	15 gallons gasoline	2.70
2859	Thomas Brennan, " ...	Lumber	14.00
2860	Taylor & Craig Co., " ...	Carpenter work	47.25
2861	St. Paul Rubber Co., " ...	Packing	3.28
2862	Lehigh Coal and Iron Co., " ...	Wood	31.50
2863	MacRitchie & Nicols, " ...	Estimate No. 1, submerged pipe	5,007.50
2864	Robinson & Cary, " ...	Tools	138.12
2865	Fielding Bros., " ...	Re-paving	171.15
	Total		$35,635.21

OCTOBER, 1887.

No.	Name.	Claim.	Amount.
2866	John Caulfield, Secretary, St. Paul	Pay roll for September	$12,723.54
2867	George Reis, City Treasurer " ...	Interest on bonds due Oct. 1..	25,062.50
2868	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 7, pipe and special castings	15,051.02
2869	R. D. Wood & Co., Philadelphia, Pa	Estimate No. 7, hydrants	1,247.00
2870	R. D. Wood & Co., Philadelphia, Pa	Estimate No. 6, valves	424.96
2871	Bingham & Taylor, Buffalo, N. Y.	Stop boxes	587.50
2872	John C. Curran, St. Paul	Estimate No. 8, drayage	260.17
2873	H. H. Harrison, Stillwater	Professional services locating reservoir, etc	382.50
2874	J. I. Beaumont, St. Paul...	Making up frontage tax	550.00
2875	Fowble & Fitz, " ...	Surveying	261.28
2876	P. H. Kelly Mercantile Co. " ...	Powder, fuse and oil	100.71
2877	Henry E. Wedelstaedt, " ...	Stationery	27.15
2878	H. P. Rugg & Co., " ...	Pipe and fittings	27.69
2879	Slater & Riley, " ...	Horseshoeing	7.20
2880	St. Paul Book & Stationery Co., St. Paul	One journal	2.00
2881	D. Ramaley & Son, St. Paul...	500 postal cards and printing	6.00
2882	Fielding Bros., " ...	Relaying pavement	86.30
2883	John Bell, " ...	Cement	35.80
2884	Farwell, Ozmun & Jackson, " ...	Tools	1.85
2885	J. W. Cunningham & Co., " ...	1,000 envelopes	2.00
2886	W. E. Magraw, " ...	Daily Globe, Aug. 1 to Oct. 31	2.55
2887	E. McNamee, " ...	Feed	16.50
2888	St. Paul Brass Works, " ...	Brass goods	210.13
2889	Warren-Scharf Asphalt Paving Co.	Repairing Summit ave. pavement	8.40
2890	J. G. Duggan & Bro., St. Paul...	Blacksmithing	72.35
2891	C. Collins, " ...	Blacksmithing	55.90
2892	J. C. Hanley Lime Co., " ...	Cement pipe	2.80
2893	Robert Seeger, " ...	Gasoline	3.60
2894	Pioneer Press Co., " ...	Job work and advertising	112.57
2895	John Caulfield, Secretary, " ...	Cash advanced per receipts attached	69.89
2896	C. E. Keller & Co., " ...	Lumber	19.92
2897	The Erie Telegraph & Telephone Co., St. Paul	Moving poles on right of way..	19.50
2898	D. L. Curtice, St. Paul	One city atlas	20.00
2899	MacRitchie & Nicols, Chicago, Ill.	Water pipe	241.49
2900	" " " "	Estimate No. 2, submerged pipe	3,796.25
	Total		$61,499.02

NOVEMBER, 1887.

No.	Name.	Claim.	Amount.
2901	John Caulfield, Sec'y, St. Paul	Pay roll for October	$12,216.10
2902	Geo. Reis, City Treasurer, "	Interest due Nov. 2, 1887	4,505.62
2903	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 8, and final, pipe	13,819.51
2904	Johnathan Warden, St. Louis	Inspecting pipe at foundry	186.70
2905	The Engineering News Publishing Co., New York	Advertising reservoir	20.40
2906	The Engineering and Building Record, N. Y	Advertising reservoir	13.80
2907	Fire and Water Publishing Co., N. Y	Advertising reservoir	9.00
2908	The American Engineer Publishing Co., Chicago, Ill	Advertising reservoir	7.00
2909	Leonard & Ellis, Chicago, Ill	Advertising reservoir	49.50
2910	National Meter Co., New York	Nine meters	155.22
2911	Hartford Steam Boiler, Ins. and Inspection Co	Prem. on $5,000 policy 3 y'rs	100.00
2912	Miles & Hale, St. Paul	One front door lock, repairs	7.60
2913	MacRitchie & Nicols, Chicago, Ill.	Estimate No. 3, submerged pipe	2,764.09
2914	Slater & Riley, St. Paul	Horse shoeing	5.65
2915	S. A. Thompson, "	Labor and team for surveyors	10.00
2916	Geo. Mitsch, "	Blacksmithing	3.45
2917	St. Paul Brass Works, "	Brass goods and repairs	236.85
2918	E. McNamee, "	Feed	12.37
2919	Farwell, Ozmun, Kirk & Co., "	Tools	1.77
2920	H. P. Rugg & Co., "	Pipe and fittings	41.64
2021	J. G. Duggan & Bro., "	Blacksmithing	60.00
2922	Thomas Brennan, "	Lumber	5.25
2923	John Martin Lumber Co., "	Lumber	63.90
2924	Pioneer Press Co., "	Job work	2.65
2925	Robinson & Cary, "	Tools and gasket packing	101.05
2926	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	56.66
2927	Geo. J. Mitsch & Co., "	Drug material	3.49
2928	Robert Seeger, "	Gasoline	4.50
2929	John C. Curran, "	Estimate No. 9, and final, drayage	414.93
2930	J. L. Rood, "	Storm doors, etc., at pump house	177.38
2931	H. E. Wedelstaedt, "	Stationery	14.03
2932	Charles Friend, "	Harness repairs	5.70
2933	Rogers & Ordway, "	Pipe fittings	3.48
2934	Craig, Larkin & Smith "	One dozen tubular lanterns	13.00
2935	Joseph Bulena, "	Blacksmithing	34.15
2936	St. Paul Foundry Co., "	Cast iron plugs	26.75
2937	Taylor & Craig Co., "	Carpenter work	25.00
2938	John Caulfield, Secretary, "	Bills paid per bills attached	62.30
2939	Donaldson, Ogden & Co., "	Lantern fixtures	4.03
2940	John Mathies, "	Window shades, office	7.70
2941	Kenney Bros., "	Return tank, pump house	25.00
2942	August Jobst, "	Blacksmithing	59.05
2943	Lehigh Coal and Iron Co., "	Wood and Coal	149.25
2944	Fielding Bros., "	Re-laying pavement	94.48
	Total		$35,580.00
	Grand total		$527,528.68

METERS.

KIND.	SIZES.								Total.
	½	⅝	¾	1	1½	2	3	4	
Worthington	3	7	17	12	9	2	2	.....	52
Union (rotary)	.....	11	11	6	5	1	1	.....	35
Union (piston)	1	12	10	9	1	.....	.....	.....	33
Crown	1	1	4	6	12	1	.....	.....	25
Empire	29	.....	37	29	.....	5	.....	1	101
Hersey	1	.....	.....	.....	.....	.....	.....	.....	1
Self-register on elevator and church organs	.....	.....	.....	.....	.....	1	.....	1	2
Total	35	31	79	62	27	10	3	2	249

Shutting off and Turning on Water, from December 1, 1886, to December 1, 1887.

	High service.	Low service.	Total.
Shut off for repairs	60	268	328
Shut off for non-payment	75	180	255
Shut off for vacant premises	30	183	213
Shut off for violation of rules	5	2	7
Total	170	633	803
Turned on, old services	139	549	688
Turned on, new services	675	315	990
Turned on for builders	.....	60	60
Total	814	924	1,738

Total shut off and turn on for year ending December 1, 1887 2,541
" " " " " " " 1886 2,384
" " " " " " " 1885 2,311
" " " " " " " 1884 1,014

SUPERINTENDENT'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1887.

To the Honorable President and Members of the Board of Water Commissioners:

GENTLEMEN:—In obedience to law I herewith present to your Honorable Board my Sixth Annual Report, which gives the details of the work done during the past year and the recommendations for the ensuing season.

The increased growth of the city has made it necessary to change the plant of eighteen years ago in sections where manufacturing and business demanded. Some other small changes were found necessary to meet the rapidly developing enterprises of our city.

The 4 inch main on Minnesota street from Third to Seventh was relaid with 6 inch. Wacouta street 151 feet south of Seventh was relaid with 6 inch. On account of the paving of Jackson street from Ninth to Twelfth the 6 inch main was taken up and replaced by a 12 inch; also, Jackson street from Third to Fourth, and before the repaving of the balance it will be necessary to relay from Fourth to Ninth with a 12 inch main to give an increased supply for fire protection to this business portion of the city.

The 20 inch main which I recommended in my last year's statement to be laid to the Seven Corners has been completed. It will be necessary that the line to Leech street shall be continued, which will give the south-west portion of the city, which is rapidly developing, an additional supply. College avenue from Wabasha to Cedar, on account of the shallowness of the pipe caused by change of grade, was relaid. That section of the city east of Mississippi street and north of Olmsted, the pressure being insufficient on low service, was connected with the high service system, and in making that connection we relaid the main on Pine from Thirteenth to Nash, which was in bad repair.

The building of the East Seventh street sewer caused the relaying of 195 feet of the old supply from Lake Phalen west of Frank which runs diagonally across Seventh on the old right of way of the Water Company; also, the changing of the same line east of Forest, and raising the high service supply which formerly ran under Lake Phalen Creek to pass over said sewer.

There were 29 Holly hydrants reset with Mathews. Sixty Mathews hydrants were reset on account of the curb lines from paving and grading. There have been placed on new extensions this year 195, making a total of 868 fire hydrants in good order. There were 56 street sprinkling hydrants set, making a total of 137 dispersed through different parts of the city.

The water has been introduced to the West Side according to the plans of last year, but is not yet wholly completed from the obstruction of the bridge building over the Minnesota & Northwestern Railroad on State street. The piles for the foundation being below the pipe line, thus leaving the portion south of the Minnesota & Northwestern Railroad with only a 6 inch supply.

The pipe crossing the river (Mississippi) was laid 6 feet below steam-boat navigation by Messrs. MacRitchie & Nicols, who seem to be skilled and honest contractors. It has stood test of 150 pounds to the square inch. It has been laid with flexible and expansion joints thus enabling it to acommodate itself to any change which might take place in the river bed, without either leakage or breakage.

One break in a similar pipe without expansion joints was found to cost in a neighboring city $2,000 for repairing, besides depriving a portion of the city for a considerably time of water supply. The main was extended to Arlington Hills on Arcade to Magnolia, thus reaching a portion of the city which heretofore had no water supply for fire protection.

The following is a statement of the extensions made during the past season: West St. Paul which will be on low service, 10,357 feet 6 inch pipe, 6,892 feet 12 inch pipe, 7701 feet 16 inch pipe: making a total of 4 miles 3830 feet of pipe; also, 64 hydrants for fire protection.

On low service (east side) 797 feet 4 inch pipe, 8,263 feet 6 inch pipe, 3,166 feet 12 inch pipe, 553 feet 16 inch pipe, 1,576 feet 20 inch pipe; making a total of 2 miles 3795 feet of pipe.

On high service 1,861 feet 4 inch pipe, 51,063 feet 6 inch pipe, 11,775 feet 12 inch pipe, 344 feet 16 inch pipe, 3,409 feet 20 inch pipe and 50 feet 24 inch pipe; total 12 miles 5142 feet of pipe.

Total mileage of pipes laid on high and low service this year 20 miles 2207 feet.

This year we had all the mains measured and corrected, leaving a small net gain. With alterations, abandonment and corrections there is now a total of 103 miles 4629 feet of water main in the city.

We have put in 1,072 service pipes, 747 on high service and 325 on low service, besides on account of paving of streets, we put 150 connections into vacant lots. This is the largest amount of consumers' services which has ever been put in during one year in connection with the St. Paul Water Works.

The inlet pipe mentioned in last year's report has been completed.

The most trouble we have now from frost is from the pocket formation of the soil in our city. The average depth of frost is about 6 feet. There are several places where the frost does not penetrate more than 4 or 5 feet, other instances where we find frost going as deep as 8 feet, and perhaps not 20 feet distant not more than 6 feet.

The settling of the Seventh street fill caused a good deal of annoyance from breakage to the service pipes during the past year.

The change of grade on Dale street, from Como avenue 1,300 feet north, will cause the main supply pipe for high service to be lowered 20 feet at the greatest depth. This will have to be done with a full supply of water on. There is considerable danger from the boulder formation of the soil to complete this work. There has been a special casting (which cost $325) already put in the main to take up the extra length, some 3½ feet, which will develop from lowering.

The wonderful growth of the city and the extending of its limits, has caused the map of pipe distribution which was made three years ago to be deficient in size. I would respectfully recommend a new one in the near future.

A storage yard for the pipe and fittings is becoming almost an absolute necessity.

In conclusion, I return my thanks to the President and Members of the Board and Mr. John Caulfield, Secretary, for their uniform courtesy and kindness to me.

I have the honor to remain, Gentlemen,

Respectfully yours,
J. B. OVERTON,
Superintendent, St. P. W. W.

PIPE RECOMMENDED TO BE LAID ON LOW SERVICE OR GRAVITY SYSTEM, DURING THE YEAR 1888.

Street.	From Street to Street.	No. of feet and size of pipe.					
		4 in.	6 in.	12 in	16 in	20 in	24 in
West Seventh	Seven Corners to Leech				425	1425	
Ramsey	West Seventh to Leech				300		
Exchange	Walnut to Sherman	700					
Walnut	West Seventh to Exchange	500					
Bradley	Beaumont to Minnehaha	500					
Minnehaha	Burr to Bradley		200				
Smith	West Seventh to Douglas		650				
Colborne	West Seventh to Superior		1200	50			
Randolph	View to Miller			1525			
L'Orient	Nash to Pennsylvania		1525				
Lafayette	Grove to Bruno				800		
Webster	Palace to Randolph		750				
Dailey	West Seventh to Jefferson		1025				
Von Minden	Western to Dousman		900				
Dousman	Von Minden to Yankee		300				
West Seventh	Lee to Tuscarora				450		
West Sixth	St. Peter to Seventh		425				
Hydrant service		600					
Fillmore	State to Dakota		2750				
Robert	Fairfield to M. & N. W. R. R.		1700				
Robert	Wood to Concord		1400				
Colorado	Greenwood to Parnell		1425				
Delos	Greenwood to Dakota		1625				
Winifred	Bancroft to Andrew		1025				
Winifred	State to Concord		950				
Concord	Bancroft to Andrew			1200			
Dakota	Isabel to Goff		600				
Isabel	Winslow to Charlton			1750			
Livingston	Delos to Wood		550				
State	Isabel to Oregon				1750		
	Total	2300	19000	4525	3725	1425	

4 inch pipe..... 2300
6 inch pipe..... 19000
12 inch pipe..... 4525
16 inch pipe..... 3725
20 inch pipe..... 1425

30975 feet or 5 miles and 4575 feet.

PIPE RECOMMENDED TO BE LAID ON HIGH SERVICE DURING THE YEAR 1888.

Street.	From Street to Street.	No. of Feet and Size of Pipe.						
		4	6	12	16	20	24	36
Dale	Marshall to Como	5150			2640		5280	
Mt. Airy	L'Orient to Broadway		725					
Woodbridge	Atwater to Front		700					
Pt. Douglas	Forest to Cypress		600					
Beech	Earl to Duluth		700					
Ross	Earl to Atlantic		1950					
Reaney	Greenbrier to Weide		900					
Case	Forest to McNenomy			6500				
York	Forest to Edgerton		3900					
Cook	Arcade to Payne		2000					
Payne	Cook to C., St. P. M & O. Ry		2775					
Simmons	Arcade to Payne		1900					
Ravine	Maria to Maple	1050						
Burr	C., St. P., M. & O. to Jenks		1125					
Central drive	West of Central Park	750						
Lafond	Western to Grotto		1900					
Blair	Dale to Avon		2000					
Edmund	Western to Grotto		3900					
Charles	Mackubin to St. Albans		2000					
Ellen	Kent to Dale		750					
Martin	Kent to Dale		700					
Carroll	Dale to Victoria		2640					
Iglehart	Dale to Victoria		2640					
Summit	St. Albans to Mil. short line bridge			6000				
For reservoir		275		1060				1536
For hydrants		2000						
University	Merriam and Union Parks Dale to Prior					14700		
Prior	University to Iglehart			3000				
Carroll	Fairview to Wilder		2200					
Iglehart	Fairview to Wilder		2300					
Rondo	Fairview to Wilder		2200					
St. Anthony	Fairview to Cleveland		2900					
Feronia	Fairview to Prior		1500					
Lynhurst, W	Fairview to Prior		1200					
Lynhurst, E	Fairview to Prior		1150					
Wilder	Iglehart to St. Anthony		1350					
Brewer	Feronia to St. Anthony		750					
Total		9225	49355	16560	2640	14700	5280	1536

4 inch pipe	9225
6 inch pipe	49355
12 inch pipe	16560
16 inch pipe	2640
20 inch pipe	14700
24 inch pipe	5280
36 inch pipe	1536
Total on high service	99296 feet or 18 miles and 4256 feet.
Total on low service	30975
Grand total	130271 feet or 24 miles and 3551 feet.

ESTIMATE OF AMOUNT AND COST OF PIPE RECOMMENDED TO BE LAID TO DECEMBER 1, 1888, ON HIGH AND LOW SERVICE.

24 3551|5280	miles street mains 4872 tons at $31.00 per ton	$151,032.00
	Special castings 133 tons at $60.00	7,980.00
	Twenty-five tons loam castings at $100.00	2,500.00
	Gates and gate boxes	8,341.00
	Fire hydrants 250 at $55.00 per set	13,750.00
Lead. 80 tons	at $100.00 per ton, and 3 tons hemp packing at $125	8,375.00
	Excavation and laying	65,000.00
	Extra for rock excavations	10,000.00
	Drayage, 6000 tons in city limits at 60 cents per ton.	3,600.00
	Drayage of pipe and specials for reservoir, 335 tons, at $1.75 per ton	586.25
	For privilege pipe	10,000.00
Total		$281,164.25

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID FROM DECEMBER 1, 1886, TO DECEMBER 1, 1887, ON LOW SERVICE IN WEST ST. PAUL.

Date.	Street.	From Street to Street.	No. ft. Size of Pipe.		
			6 in.	12 in.	16 in.
September 10	Fairfield avenue	Dakota to State Street	2752		
September 10	Eaton avenue	At Fairfield	51		
October 24	Crossing Mississippi	Broadway to State			1089
" 24	Alabama	Crossing State	55		
" 24	Fillmore	Crossing State	30		
" 24	Tennessee	Crossing State	51		
" 24	Kentucky	Crossing State	55		
" 24	Indiana avenue	Dakota to Starkey		457	
" 24	Indiana avenue	Starkey to State			2242
" 24	Eaton avenue	At Indiana			100
" 24	State street	Mississippi River to Morrison			2942
" 28	Dakota	Channel to Isabel	1412		
" 28	Isabel	State to Winslow		3323	
" 28	Concord	Isabel to Bancroft		3112	
November 4	State street	Concord to Isabel			1328
October 29	South Robert	Fairfield to Bridge	568		
November 4	Robie street	State to Bancroft	1295		
November 8	Winifred	State to Bancroft	1308		
November 9	Congress	Concord to Bancroft	2780		
	Total		10357	6893	7701

6 inch pipe..... 10357
12 inch pipe..... 6892
16 inch pipe..... 7701

24950 feet or 4 miles and 3836 feet.

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID FROM DECEMBER 1, 1886, TO DECEMBER 1, 1887, ON LOW SERVICE.

Date.	Street.	From Street to Street.	Number of feet and size of pipe.				
			4 in.	6 in.	12 in.	16 in.	20 in.
March 25	St. Peter	Sixth to Seventh		361			
April 20	Robert	Fourteenth st. to Central ave		124			
April 21	Jefferson avenue	Oneida to Western			399		
April 21	Webster	North of Jefferson		271			
May 7	Michigan	Crossing of Seventh		59			
May 9	Franklin	Sherman to Elm	430				
May 20	Exchange	St. Peter to Wabasha	367				
June 2	Western avenue	St. Clair to Mil. short line		482			
June 4	Jackson	Ninth to Twelfth street			1110		
June 29	Prairie	Garfield to 40 ft. west of Western		681			
July 1	Pennsylvania ave.	Mississippi to L'Orient		304			
July 6	Glencoe	Mississippi to Columbia		547			
June 26	Jackson	Third to Fourth			361		
July 27	Beaumont	Bedford to Decatur		570			
July 30	Payne avenue	Minnehaha street south		404			
July 30	Minnehaha	Payne to Preble		403			
July 30	Preble	Beaumont to Minnehaha		471			
July 30	Fort	Seventh to Tenth					1550
July 30	West Seventh	West of Eagle					26
July 30	West Seventh	Head of Eagle				27	
July 30	Eagle	Southeast of Seventh		26			
Aug. 25	Duke	Seventh to Cascade		1022			
Sept. 29	Randolph	Seventh to View			1296		
Oct. 20	Dousman	Goodhue to Yankee		276			
Oct. 24	Broadway	Third street to Mississippi River				526	
Oct. 26	Summit avenue	Robert to Cedar		859			
Oct. 26	Cedar	At Summit		17			
Oct. 28	John	South of Williams		181			
Oct. 29	Western avenue	West Seventh to Goodhue		501			
Nov. 2	Reaney	Crossing of Edgerton		47			
Nov. 2	Edgerton	Minnehaha to Reaney		328			
Nov. 2	Minnehaha	Edgerton to Jesse		329			
	Total		797	8263	3166	553	1576

4 inch pipe 797
6 " " 8263
12 " " 3166
16 " " 553
20 " " 1576

14355 feet or 2 miles and 3795 feet.

LOCATION, SIZE AND AMOUNT OF WATER MAINS LAID FROM DECEMBER 1, 1886, TO DECEMBER 1, 1887, ON HIGH SERVICE.

Date.		Street.	From Street to Street.	No. of feet and size of pipe.					
				4	6	12	16	20	24
April	21	Maria	Hudson to Cherry		731				
"	21	Cherry	Hoffman to Maria		565				
"	23	Robert	University to North		238				
"	27	Pine	Thirteenth to Olmsted		579				
May	7	Grotto	Lincoln to Marshall		3522				
"	9	Dayton	Fisk to 70 feet W. of Victoria		553				
"	14	Selby	Grotto to Victoria		1268				
"	17	Portland	Grotto to Avon		620				
"	17	Margaret	Seventh to Greenbrier		948				
"	24	Hoffman	Cherry to Clermont		2114				
"	27	Cherry	South of Hoffman	267					
"	30	Ramsey	Oakland to Summit		1195				
June	1	Oakland	Ramsey to Western		797				
"	2	Fourth	Maria to Mendota		2305				
"	4	Dale	Lincoln to Goodrich			398			
"	4	Goodrich	East of Dale		782				
"	8	Arundel	Marshall to Iglehart	330					
"	10	Mackubin	Rondo to Fuller		968				
"	11	Mackubin	University to Ellen		328				
"	11	Eichenwold	Connection at Sixth street		17				
"	11	Sinnen	Connection at Sixth street		16				
"	11	East Sixth	Hoffman to Sinnen		2458				
"	14	Viola	Crossing Jackson		44				
"	14	Jackson	Viola to Valley		208				
"	15	Martin	Arundel to Kent		1325				
"	16	Greenbrier	Seventh to Margaret			650			
"	22	Sherburne	Rice to Cedar		1308				
"	25	Wabasha	Central to Park	487					
"	29	St. Anthony	Dale to Rice		5219				
"	29	Ravoux	Rondo to St. Anthony	288					
"	30	Brewster	University to Viola		752				
July	5	Martin	Western to Summit Place,		1970				
"	13	Arcade	East Seventh to Magnolia			4348			
"	13	Farquier	Arcade to Weide		424				
"	19	Reaney	East Seventh to Weide		1488				
"	23	Edmund	Marion to Western		1740				
Aug.	1	Aurora	Rice to Virginia		2297				
"	5	Louis	Carroll to Fuller		1292				
"	6	Jay	St. Anthony to Fuller		656				
"	8	Park	Martin to Wabasha		322				
"	17	Conway	Maria to Forest		2403				
"	18	Thomas	Western to Dale		2580				
"	19	Francis	Mendota to Arcade		575				
"	24	River	Hoffman to Maria	342					
"	25	Blair	Western to Dale		2580				
"	31	Iglehart	Mackubin to Dale		1279				
Sept.	3	Jackson	Valley to Robert st. as ext'nd'd			1084	145		
"	3	Como	At Jackson					6	
"	3	Valley	Jackson to Fairview				199		
"	10	Como	Rice to Western					3403	
"	18	Dale	At Como						50
"	18	Maryland	At Dale			10			
Oct.	6	Front	Rice to Dale			5285			
"	12	Lincoln	Avon to Milton		1391				
"	15	Grand	Victoria to 63 ft. W. of Milton		782				
"	18	Hague	Fisk to Victoria		424				
"	28	Central drive	W. S. of Central Park	147					
		Total		1861	51063	11775	344	3409	50

4 inch pipe	1861
6 " "	51063
12 " "	11775
16 " "	344
20 " "	3409
24 " "	50

68502 feet or 12 miles and 5142 feet.

Total mileage laid this year on high and low service, 20 miles and 2207 feet.

Location, Size and Number of Feet of Water Mains Laid on Gravity System or Low Service to December 1, 1887.

Street or Ave.	From Street to Street.	Number of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Acker	Mississippi to Courtland		1644						
Alabama	Crossing of State		55						
Armstrong	East of Seventh		35						
Audubon	East of Seventh		38						
Banfil	Seventh to Smith avenue	887							
Bay	South of Seventh		35						
Beaumont	Preble to De Soto		1546						
Becker Place	Lafayette to De Soto		481						
Bedford	North to Minnehaha		1327						
Bradley	Seventh to North		1298						
Broadway	Mississippi River to Fifteenth	498	1735		1938		1741		
Bruno	East of Lafayette		47						
Buffalo	Acker to Genesee		631						
Burr	Partridge to Farquier		2473						
Canada	Ninth to Fifteenth		2055						
Cedar	Third to Summit		289	2573		614			
Chestnut	Seventh to Washington		1235						
Colborne	Grace to Jefferson		581						
College	Cedar to Smith avenue		1670						
Collins	Lafayette to Bedford		1016						
Cooper	Ninth to Norris	986							
Crossing river	Broadway to State				1089				
Concord	Isabel to Bancroft			3112					
Congress	Concord to Bancroft		2780						
Dakota	Bridge to Isabel		2947						
Decatur	Bedford to Beaumont		710						
De Soto	Hopkins to Farquier		453	1540					
Douglas	Seventh to Ramsey		1144						
Duke	Seventh to Cascade		1057						
Dousman	Goodhue to Yankee		276						
Eagle	Spring to Seventh		251						
Eighth	Wabasha to 110 ft. E of Neill	4691							
Eleventh	Cedar to Olive	557	1238						
Elm	Exchange to Mill. S Line	406							
Exchange	Wabasha to Wilkin	3962							
Eaton	At Ind & Fairfield Crossings		51		100				
Edgerton	Minnehaha to Reaney		328						
Fairfield	State to Dakota		2812						
Farquier	Payne to De Soto			1982					
Fifth	Third to Kittson	4902	1409						
Forbes	Ramsey to Pleasant		545						
Fort	Seventh to Tenth					1616			
Fourth	Kittson to Exchange		4865	1877					
Fourteenth	Canada to Robert		1033						
Franklin	Elm to Ninth	2784							
Fillmore	Crossing State		30						
Garfield	Prairie to Goodrich		631						
Genesee	Mississippi to Buffalo		814						
Goodhue	Cliff to Richmond		2122						
Goodrich	Mill. Short Line to Western		1260	1062					
	eventh to Colborne		72						
	ississippi to Courtland		1604						
	onroe to Jackson	133	1310			1544			
	ississippi to Columbia		547						
	Soto to Bradley		700						
	akota to State			457	2242				
	ate to Winslow			3323					
	ree to Fifteenth	40	2931	1471		108			
	ossing of Seventh		60						
	eventh to Webster			532					
	innehaha to Farquier		634						
	ourth to Williams	1810	1296						
	ourth to Seventh		846						

Location, Size and Number of Feet of Water Mains Laid on Gravity System or Low Service to December, 1, 1887.

Street or Ave.	From Street to Street.	Number of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Kentucky	Crossing of State		55						
Lafayette	Grove to De Soto	205		150	1915				
Lee avenue	East of Seventh		35						
Leech	Ramsey to Goodrich		1115						
Levee	Sibley to Jackson	340							
Locust	Seventh to Grove				1025				
L'Orient	Thirteenth to Nash		400						
McBoal	Wilkin to Douglas		1301						
Magnolia	Crossing of Mississippi		18						
Market	Third to Fourth	250							
Minnehaha	Payne to Bedford		822						
Minnesota	Third to Twelfth	1484	1428						
Mississippi	Grove to terminal chamber		5880					16436	18
Monroe Place	Grove to Woodward	300							
Mt. Airy	Mississippi to L'Orient		290						
Mt. Ida	De Soto to Otsego		108						
Michigan	Crossing of Seventh		59						
Nash	Pine to L'Orient		698						
Neill	Seventh to Eighth	325							
Ninth	Neill to Smith avenue	975	5145						
Norris	Canada to Temperance	761							
North	Bedford to De Soto		851						
Olive	Sixth to Olmsted	1484							
Olmsted	John to Pine		651						
Oneida	South of Seventh		36						
Otsego	Lafayette to Mt. Ida		791						
Partridge	Bradley to De Soto	472							
Pine	Ninth to Olmsted	602	965						
Pleasant	Sixth to Ramsey		3117						
Prairie	Douglas to 40 ft. W of Western		1341						
Prince	John to Broadway		777						
Payne	Beaumont to C. St. P. M. & O		1092						
Pennsylvania	Mississippi to L'Orient		304						
Preble	Beaumont to Minnehaha		471						
Ramsey	Leech to Pleasant		1342						
Randolph	Seventh to View		35	1296					
Richmond	South of Seventh		27						
Robert	Fairfield to Central		4865						
Reaney	Payne to Edgerton		657						
Rosabel	Third to Seventh		1437						
Roble	State to Bancroft		1295						
St. Clair	East of Seventh		40						
St. Peter	Third to College		2866						
Seventh	Duluth R. R. to Lee avenue	350	1038	3723	12942	26			
Second	East of Robert		18						
Sherman	Bluff to Pleasant		1937						
Sibley	Levee to Eighth	652	1450						
Sixth	Kittson to Pleasant	4936	1376						
Smith street	Wilkin to Seventh		596						
Smith avenue	College to McBoal		3924						
Somerset	John to Pine	669							
Spruce	Wacouta to Cooper	393							
State	Mississippi River to Concord				4270				
Summit avenue	Robert to Cedar		859						
Temperance	Eighth to Thirteenth	1569							
Tenth	Locust to College	1765	2123			1390			
Third	Broadway to College		6687						
Thirteenth	Pine to Jackson	310	1765						
Twelfth	Pine to Cedar	290				1274			
Toronto	South of Seventh		35						
Tennessee	Crossing State		51						
Wabasha	Third to Summit		3336			26			

Location, Size and Number of Feet of Water Mains Laid on Gravity System or High Service to December 1, 1887.

Street or Ave.	From Street to Street.	Number of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Wacouta	Third to Spruce	1141	1378	.....	.....	.....	.....	.....	.....
Walnut	100 ft. S of Irvine P. to Pleas't	2420	.....	.....	.....	.....	.....	.....	.....
Warsaw	South of Seventh	.....	35	.....	.....	.....	.....	.....	.....
Washington	Chestnut to Sixth	2043	.....	.....	.....	.....	.....	.....	.....
Waverly Place	Lafayette to John	.....	411	.....	.....	.....	.....	.....	.....
Webster	Clay to Seventh	.....	316	.....	.....	.....	.....	.....	.....
Western	Mil. Short Line to Goodhue	.....	1230	.....	.....	.....	.....	.....	.....
Westminster	Waverly Place to N. P. R. R.	.....	1022	.....	.....	.....	.....	.....	.....
Willius	Fifth to Seventh	550	.....	.....	.....	.....	.....	.....	.....
Wilkin	Milwaukee R. R. to Sherman	.....	1215	.....	.....	.....	.....	.....	.....
Winifred	State to Bancroft	.....	1308	.....	.....	.....	.....	.....	.....
Yankee	East of Seventh	31	.....	.....	.....	.....	.....	.....	.....
Main Line old	Farquier to Lake Phalen	.....	.....	.....	6000	.....	7024	.....	.....
	Total	45973	127311	23098	31521	6598	8765	16436	18

Low service.

Total 4 inch pipe	45973
Total 6 inch pipe	127311
Total 12 inch pipe	23098
Total 16 inch pipe	31521
Total 20 inch pipe	6598
Total 24 inch pipe	8765
Total 30 inch pipe	16436
Total 36 inch pipe	18

259720 feet or 49 miles and 100 feet

Location, Size and Number of Feet of Water Mains Laid on High Service to December 1, 1887.

Street or Ave.	From Street to Street.	Number of Feet and Size of Pipe.					
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Arundel	Summit to Iglehart	1575					
Ashland	Western to Avon		4570				
Aurora	Robert to Kent		5201				
Arcade	Seventh to Magnolia			4348			
Bates	Plum to Seventh			2975			
Beech	Mendota to Seventh		4556				
Blair	Western to Dale		2600				
Broadway	Thirteenth to Mt. Airy		407		533		
Brewster	University to Viola		752				
Canada	Fifteenth to Valley		290				
Carroll	Rice to 100 ft. west of Milton		6300				
Conway	Forest to Maria		2403				
Cedar	Summit to Como		2486				
Central avenue	East line of Central Park to Rice	557	1254				
Central Park Drive,	east and west, Summit to Central	732					
Charles	Rice to Western		2640				
College	Rice to Third		1165				
Como	Rice to Dale					6555	
Cherry	267 feet west of Hoffman to Maria	267	565				
Dale	Goodrich to McCarron road			1304	2640	1447	9234
Dayton	Summit to 70 ft. west of Victoria		2718	4675			
Earl	Beech to Seventh			1615			
Edmund	Rice to Western		2640				
Eichhenwold	Sixth to Seventh		532				
Ellen	Rice to Kent		4590				
Farrington	Summit to Carroll		2400				
Farquier	Earl to Weide		2966				
Fuller	Rice to Kent		4586				
Fifteenth	Broadway to Jackson				1300		
Fifth	Maple to 340 ft. west of Maria		1438				
Floral	Grand to Summit	480					
Fourth	Mendota to 400 ft. west of Maria		2705				
Francis	Mendota to Arcade		575				
Front	Rice to Dale			5285			
Grand	Lawton to 63 ft. west of Milton		5008				
Grove	Seventh to Pine				2618		
Grotto	Lincoln to Marshall		3522				
Goodrich	East of Dale		782				
Greenbrier	Seventh to Margaret			650			
Hoffman	Clermont to Seventh		2601				
Holly	Western to Avon		4585				
Hague	Dale to Victoria		2600				
Hudson	Maria to Mendota		1084	194			
Iglehart	Wabasha to Dale		6903				
Jackson	Viola to Robert street as extended		236	1084	145		
Jay	St. Anthony to Fuller		656				
Kent	Portland to Carroll	2201					
Laurel	Nina to Miller		5470				
Lawton	Grand to Summit		480				
Lincoln	Oakland to Milton		4231				
Louis	Nelson to Fuller		2122				
Linden	At Mt. Airy		50				
McCarron road	Force Main Pump House to Dale					6124	
Mackubin	Summit to Ellen		5604				
Maple	Hudson to Seventh		2660	6			
Margaret	Earl to Greenbrier		3862				
Martin	Central to Kent		5148				
Maria	Cherry to Eighth		3706				
Marshall	Western to Victoria		2640	2640			
Mendota	Hudson to Farquier		655	3286			
Mt. Airy	Broadway to Robert		1386				
Maryland	At Dale			10			
Nelson	Summit to Western		2422				
Neurer	West of Western		20				
Nina	Summit to Selby		800				
Oakland	Ramsey to Summit		3662				

Location, Size and Number of Feet of Water Mains Laid on High Service to December 1, 1887.

Street or Avenue.	From Street to Street.	Number of Feet and Size of Pipe.					
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.
Olive	Olmsted to Pennsylvania		1010				
Park Place	Park Drive	574					
Park avenue	Martin to University		592				
Point Douglas	Forest to Maple		1133				
Pine	Grove to Williams		1329		387		
Portland	Summit to Avon		3885				
Rice	College to St. Paul M. & M. R. R.		495	1207	2390	1154	
Robert	171 ft. S. of University to Mt. Airy		770				
Rondo	Rice to Mackubin		3952				
Reaney	Frank to Weide		3503				
Ramsey	Oakland to Summit		1259				
Ross	Earl to Seventh		496				
Ravoux	Rondo to St. Anthony	288					
River	Maria to Hoffman	342					
St. Anthony	Rice to Dale		5239				
St. Peter	College to University		2557				
Selby	Summit to Victoria		6642				
Seventh	Duluth avenue to Grove				8420		
Sherburne avenue	Jackson to Rice	400	1308				
Sinnen	Sixth to Seventh		541				
Suction Main	Pump House to terminal chamber						907
Summit avenue	Cedar to St. Albans		4316	4800			
Summit Place	Nelson to Fuller		2122				
Third	College to Summit		567				
Third	Cypress to Maria		3314				
Thirteenth	Pine to Broadway				778		
Tilton	Wabasha to Rice		1278				
Thomas	Western to Dale		2600				
Topping	West of Como		72				
University	Jackson to Dale			5254	2294		
Valley	Broadway to Jackson				1780		
Viola	Jackson to Rice		1653				
Victoria	Marshall to Carroll		660				
Virginia	Summit to Iglehart	475	1798				
Wabasha	Summit to Park avenue	537	842				
Western	Summit to Como			1775	6285		
Williams	Olive to Mississippi		857				
	Total	8428	184013	41108	29579	15480	10141

High service.

Total 4 inch pipe	8428
Total 6 inch pipe	184013
Total 12 inch pipe	41108
Total 16 inch pipe	29579
Total 20 inch pipe	15480
Total 24 inch pipe	10141
	288749 feet or 54 miles and 3629 feet.

Total pipe laid on High and Low service to December 1, 1887:

High service	288749
Low service	259720
	548469 feet or 103 miles and 4629 feet.

Also 4½ miles of brick aqueduct 5½x6 feet, with necessary waste weirs and gate houses.

LIST OF HYDRANTS.

No.	Location.	Service.	Name of Hydrant	Size of Pipe.	Pressure of Hydrant.
1	Monroe and Woodward	Low	Mathew	4	36
2	Grove and Lafayette	"	"	6	38
3	Westminster and Waverly	"	"	6	36
4	Westminster and Herkimer	"	"	6	36
5	Grove and Olive	"	"	6	39
6	John and Somerset	"	Holly	4	36
7	Olive and Somerset	"	Mathew	4	36
8	Pine and Thirteenth	"	"	6	36
9	Thirteenth and Mississippi	"	"	6	36
10	Grove and Mississippi	"	"	20	37
11	Pine and Eleventh	"	"	4	37
12	Canada and Grove	"	"	6	36
13	Canada and Spruce	"	"	6	36
14	Grove in middle, between Canada and Temperance	"	"	20	34
15	Jackson and Grove	"	"	6	30
16	Robert and Twelfth	"	"	6	28
17	Robert and Eleventh	"	"	6	26
18	Minnesota and Eleventh	"	Holly	6	26
19	Eleventh and Cedar	"	Mathew	6	23
20	College and Wabasha	"	"	6	23
21	Wabasha and Tenth	"	"	6	25
22	St. Peter and Tenth	"	"	6	23
23	St. Peter and College	High	"	6	91
24	St. Peter and Summit	"	"	6	80
25	Tenth and College	Low	"	6	20
26	Tenth, between St. Peter and Fort	"	"	20	25
27	St. Peter and Exchange	"	"	6	27
28	Wabasha and Exchange	"	"	6	27
29	St. Peter and Ninth	"	"	6	29
30	Wabasha and Ninth	"	"	6	30
31	Jackson and Ninth	"	"	6	37
32	Ninth and Cooper	"	"	6	39
33	Ninth and Canada	"	"	6	40
34	Ninth and Pine	"	"	6	41
35	Ninth and John	"	"	6	41
36	Ninth and Locust	"	"	6	42
37	Eighth and Neill	"	Holly	4	45
38	Fifth and Locust	"	Mathew	6	54
39	Eighth and Olive	"	"	4	43
40	Broadway and Eighth	"	"	6	42
41	Eighth and Wacouta	"	"	4	41
42	Jackson and Eighth	"	"	6	40
43	Robert and Eighth	"	"	6	38
44	Burr and Partridge	"	"	6	33
45	Burr and Hopkins	"	"	6	29
46	De Soto and Hopkins	"	"	6	30
47	Third and Smith avenue	"	"	6	29
48	Third and Pleasant	"	"	6	25
49	College and Third	High	"	6	82
50	Exchange and Sherman	Low	Holly	4	35
51	Walnut and Exchange	"	"	4	36
52	Sherman and Seventh	"	Mathew	6	34
53	Seventh and Walnut	"	Holly	12	37
54	Chestnut and Seventh	"	Mathew	6	35
55	Fort and Third	"	"	20	32
56	Fourth and Seventh	"	"	12	32
57	Seventh, back of Winslow house	"	"	12	31
58	Seventh and Fifth	"	"	12	30
59	Seventh and Franklin	"	"	12	30
60	Seventh and Sixth	"	"	12	31
61	Seventh and St. Peter	"	Holly	12	31
62	Seventh and Wabasha	"	"	16	32
63	Cedar and Seventh	"	Mathew	12	38
64	Seventh and Minnesota N. W. C.	"	"	16	40
65	Seventh and Robert	"	"	16	41
66	Jackson and Seventh	"	"	6	42
67	Seventh and Sibley	"	"	16	43
68	Seventh and Wacouta	"	"	16	42
69	Seventh and Rosabel	"	"	16	41

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure of Hydrant.
70	Broadway and Seventh	Low	Mathew	16	41
71	Seventh and Pine	"	"	16	40
72	Seventh and Olive	"	"	16	41
73	Seventh and John	"	"	16	42
74	Seventh and Locust	"	"	16	44
75	Seventh and Neill	"	"	6	48
76	Willius and Sixth	"	"	4	48
77	Sixth and Pine	"	"	4	40
78	Jackson and Sixth	"	"	6	45
79	Robert and Sixth	"	"	6	44
80	Sixth and Minnesota	"	"	4	42
81	Sixth and Wabasha	"	"	6	30
82	Fifth and Washington	"	"	4	30
83	Fifth and Wabasha	"	"	6	28
84	Fifth and Cedar	"	"	4	41
85	Fifth and Minnesota	"	"	4	43
86	Robert and Fifth	"	"	6	44
87	Jackson and Fifth	"	"	6	46
88	Fourth and Sibley	"	"	6	52
89	Jackson and Fourth, S. E. C.	"	"	12	48
90	Fourth and Robert	"	"	6	44
91	Fourth and Minnesota, N. W. C.	"	"	6	42
92	Fourth and Wabasha	"	"	6	28
93	Washington and Fourth	"	"	4	32
94	Third and Exchange	"	"	6	32
95	Third, between Exchange and Franklin	"	"	6	32
96	Third and Franklin	"	"	6	32
97	Third and Washington	"	"	6	32
98	Third and Market	"	"	6	32
99	Washington and Eagle	"	"	4	62
100	Third and St. Peter	"	"	6	30
101	Wabasha and Third	"	"	6	28
102	Cedar and Third	"	"	12	30
103	Third and Minnesota	"	"	6	40
104	Third and Robert	"	"	6	45
105	Third and Jackson, S. E. C.	"	"	6	52
106	Sibley and Third	"	"	6	60
107	Jackson and Levee	"	"	6	66
108	Jackson and Tenth	"	"	12	32
109	Jackson and Eleventh	"	"	12	30
110	Sibley and Levee	"	"	4	66
111	St. Peter and Fifth	"	"	6	30
112	Ninth and Robert	"	Holly	6	33
113	Tenth and Wacouta	"	Mathew	4	38
114	Mississippi and Nash	"	"	6	32
115	Broadway and Twelfth	"	"	6	37
116	Broadway and Tenth	"	"	6	39
117	Elm and Franklin	"	"	4	22
118	Ninth and Cedar	"	"	6	32
119	Fourth and St. Peter	"	"	6	30
120	Sixth and Cedar	"	"	4	40
121	Fourth and Franklin	"	"	6	30
122	Seventh and Leech	"	"	12	30
123	Grove and John	"	"	6	38
124	Grove and Pine	"	"	6	39
125	Canada and Tenth	"	"	6	38
126	Ninth and Wacouta	"	"	6	40
127	Eighth and Temperance	"	"	4	41
128	Seventh and Willius	"	"	6	47
129	Seventh and Kittson	"	"	6	50
130	Ramsey and Leech	"	"	6	32
131	Collins and Lafayette	"	"	6	18
132	Sibley and Fifth	"	"	6	45
133	Willius and Fifth	"	"	4	55
134	Eighth and Willius	"	Holly	4	44
135	Cooper and Tenth	"	"	4	38
136	Pleasant, between Third and Chestnut	"	Mathew	6	27
137	Pleasant and Chestnut	"	"	6	28
138	Pleasant and Walnut	"	"	6	28

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
139	Smith avenue, between Third and Chestnut	Low	Mathew	6	30
140	Fort, between Ninth and Tenth	"	"	20	25
141	Fort and Ninth	"	"	20	27
142	Fort and Sixth	"	"	20	29
143	Fort and Fifth	"	"	20	31
144	Canada and Thirteenth	"	"	6	36
145	Thirteenth, between Canada and Temperance	"	"	6	36
146	Thirteenth and Temperance	"	"	6	34
147	Mississippi and Mt. Airy	"	"	6	30
148	Mississippi and Glencoe	"	"	6	26
149	Mississippi, between Glencoe and Pennsylvania	"	"	6	24
150	Mississippi and Pennsylvania	"	"	6	22
151	Pine and Nash	"	"	6	36
152	Olmsted and Pine	"	"	6	36
153	Olmsted and Olive	"	"	6	37
154	Olmsted and John	"	"	6	37
155	Ninth and Exchange	"	Holly	6	79
156	Ninth and Franklin	"	Mathew	6	30
157	Wabasha and Summit	"	"	6	17
158	Robert and Tenth	"	"	6	26
159	Canada and Norris	"	"	6	38
160	Norris and Cooper	"	Holly	4	38
161	Spruce and Wacouta	"	"	4	38
162	Spruce and Cooper	"	"	4	38
163	College, between St. Peter and Tenth	"	"	6	20
164	Fourth and Wakouta	"	Mathew	6	56
165	Sibley and Fifth	"	"	6	48
166	Walnut and Smith avenue	"	"	4	33
167	Fourth and Rosabel	"	"	6	58
168	Broadway 150 feet south of Third	"	"	16	66
169	Third and Broadway	Low	Mathew	6	65
170	Third and Rosabel	"	"	6	64
171	Third and Wacouta, northwest corner	"	"	6	63
172	Rice and Summit	High	"	6	86
173	Fourth and Market	Low	"	6	30
174	Collins and Bedford	"	"	6	20
175	Burr and Collins	"	"	6	12
176	Tenth and Pine	"	"	6	40
177	Tenth and Olive	"	"	6	40
178	Tenth and John	"	"	6	40
179	Fourteenth and Canada	"	"	6	33
180	Fourteenth, between Canada and Jackson	"	"	6	35
181	Partridge and Bradley	"	"	4	30
182	Fourth and Broadway, northwest corner	"	"	6	61
183	Exchange and Sixth	"	Holly	4	30
184	North and Burr	"	Mathew	6	16
185	North and DeSoto	"	"	6	18
186	Rosabel and Fifth	"	"	6	52
187	Rosabel and Sixth	"	"	6	46
188	Pleasant and Sherman	"	"	6	30
189	Fourth and Jackson, northwest corner	"	"	6	48
190	John and Fourth	"	"	6	62
191	John and Fifth	"	"	6	53
192	John and Sixth	"	"	6	45
193	Bruno and Lafayette	"	"	6	40
194	Canada and Fifteenth	"	"	6	27
195	Becker and Lafayette	"	"	6	25
196	Pleasant and Sixth	"	"	6	22
197	Jackson and Thirteenth	"	"	6	30
198	Jackson and Fourteenth	"	"	6	27
199	Wilkin and McBoal	"	"	6	32
200	Wakouta and Third, southeast corner	"	"	6	63
201	McBoal and Leech	"	"	6	32
202	Wakouta and Sixth	"	"	6	45
203	Wakouta and Fifth	"	"	6	51
204	Fifth and Broadway	"	"	4	54
205	Sixth and Broadway	"	"	4	47
206	Tenth and Minnesota	"	"	6	26
207	Tenth and Cedar, northeast corner	"	"	6	26

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
208	Jackson and Fifteenth	Low	Mathew	6	20
209	Cedar and Eighth	"	"	12	36
210	Cedar and Exchange	"	"	12	28
211	Ninth and Minnesota	"	"	6	33
212	Wilkin and Smith	"	"	6	34
213	Fifth and Neill	"	"	6	56
214	Kittson and Fifth	"	"	6	57
215	Kittson and Sixth	"	"	6	53
216	Sixth and Neill	"	"	4	52
217	Otsego and Mt. Ida	"	"	6	8
218	Bradley and Woodward	"	"	6	32
219	Bradley and North	"	"	6	27
220	Hopkins and Bradley	"	"	6	28
221	Smith avenue and Chestnut	"	"	6	21
222	Bedford and Beaumont	"	"	6	15
223	Bedford and Minnehaha	"	"	6	12
224	Forbesand Pleasant	"	"	6	31
225	Forbes and Ramsey	"	"	6	32
226	Smith avenue and Smith street	"	"	6	31
227	Fourth and Cedar	"	"	6	35
228	Eighth and Minnesota	"	"	4	37
229	Beaumont and Bradley	"	"	6	12
230	Beaumont and DeSoto	"	"	6	12
231	Burr and Beaumont	"	"	6	11
232	Burr and Minnehaha	"	"	6	8
233	Burr and Fauquier	"	"	6	10
234	Smith avenue and Seventh	"	"	6	30
235	Fourth and Pine	"	"	12	60
236	Fourth and Olive	"	"	12	62
237	Smith street and Seventh	"	"	6	31
238	Fourth and Exchange	"	"	6	32
239	McBoal and Seventh	"	"	6	30
240	St. Peter and Sixth	"	"	6	30
241	Prince and Pine	"	"	6	64
242	Prince and Olive	"	"	6	65
243	Prince and John	"	"	6	65
244	Mt. Airy and L'Orient	"	"	6	20
245	Smith avenue and Fifth	"	"	6	29
246	Smith avenue and Sixth	"	"	6	26
247	Smith avenue and College	"	"	6	18
248	Douglas and Seventh	"	"	6	31
249	Goodrich and Seventh	"	"	6	31
250	Goodrich and Smith avenue	"	"	6	35
251	Goodrich and Leech	"	"	6	36
252	Acker and Mississippi	"	"	6	20
253	Genesee and Mississippi	"	"	6	23
254	Granite and Mississippi	"	"	6	25
255	Second and Robert	"	"	6	53
256	Pleasant and Ramsey	"	"	6	29
257	Ramsey and Douglas	"	"	6	32
258	Sherman and Franklin	"	"	6	33
259	Chestnut and Exchange	"	"	6	45
260	Exchange and Eagle	"	"	4	46
261	Williams and Pine	High	"	6	87
262	Pine, 200 feet south of Williams	"	"	6	85
263	Topping and Como	"	"	6	72
264	Nearer and Western	"	"	6	71
265	Blair and Western	"	"	6	73
266	Thomas and Western	"	"	6	72
267	University and Western	"	"	12	73
268	Aurora and Western	"	"	6	74
269	Fuller and Western	"	"	6	70
270	Martin and Western	"	"	6	67
271	St. Anthony and Western	"	"	6	70
272	Rondo and Western	"	"	6	73
273	Carroll and Western	"	"	6	67
274	Iglehart and Western	"	"	6	55
275	Marshall and Western	"	"	6	46
276	Dayton and Western	"	"	12	45

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
277	Western and Selby	High	Mathew	12	45
278	Western and Laurel	"	"	12	46
279	Western and Ashland	"	"	12	46
280	Western and Holly	"	"	12	47
281	Western and Portland	"	"	12	47
282	Summit and Portland	"	"	12	47
283	Summit and Arundel	"	"	12	45
284	Summit and Mackubin	"	"	12	45
285	Summit and Kent	"	"	12	49
286	Summit and Oakland	"	"	12	50
287	Holly and Dale	"	"	6	50
288	Holly and Kent	"	"	6	48
289	Holly and Mackubin	"	"	6	44
290	Holly and Arundel	"	"	6	45
291	Ashland and Arundel	"	"	6	45
292	Ashland and Mackubin	"	"	6	43
293	Ashland and Kent	"	"	6	45
294	Ashland and Dale	"	"	6	50
295	Laurel and Dale, northeast corner	"	"	6	47
296	Laurel and Kent	"	"	6	43
297	Laurel and Mackubin, northwest corner	"	"	6	42
298	Laurel and Arundel	"	"	6	42
299	Dayton and Dale	"	"	12	42
300	Dayton and Kent	"	"	12	42
301	Dayton and Mackubin	"	"	12	42
302	Dayton and Arundel	"	"	12	44
303	Dayton and Virginia	"	"	12	44
304	Dayton and Farrington	"	"	12	44
305	Dayton, between Summit and Farrington	"	"	12	55
306	Summit and Dayton	"	"	6	58
307	Summit and Selby	"	"	6	50
308	Summit, head of Walnut	"	"	6	51
309	Summit and Nina	"	"	6	45
310	Summit and Farrington	"	"	6	42
311	Summit and Virginia	"	"	6	45
312	Farrington and Laurel	"	"	6	46
313	Farrington and Selby	"	"	6	44
314	Selby and Nina	"	"	6	44
315	Nina and Laurel	"	"	6	45
316	Westminster, 200 feet south of St. P., M. & M. R. R.	Low	"	6	33
317	Thirteenth and Broadway	"	"	6	36
318	Temperance and Norris	"	"	4	35
319	Banfil and Seventh	"	"	4	31
320	Goodhue and Seventh	"	"	6	31
321	Yankee and Seventh	"	"	4	31
322	Western and Seventh	"	"	6	31
323	St. Clair and Seventh	"	"	6	31
324	Richmond and Seventh	"	"	6	31
325	Seventh and Colborne	"	"	16	32
326	Chestnut and Franklin	"	"	6	52
327	Twelfth and Jackson	"	"	20	29
328	Twelfth and Minnesota	"	"	20	27
329	Twelfth and Cedar	"	"	20	24
330	Cedar and Summit	"	"	6	22
331	Chestnut and Washington	"	"	6	60
332	Laurel and Virginia	High	"	6	45
333	Selby and Virginia	"	"	6	45
334	Mackubin and Laurel, southwest corner	"	"	6	42
335	Portland and Arundel	"	"	6	44
336	Portland and Mackubin	"	"	6	41
337	Portland and Kent	"	"	6	45
338	Portland and Dale	"	"	6	45
339	Selby and Arundel	"	"	6	45
340	Selby and Mackubin	"	"	6	44
341	Selby and Kent	"	"	6	44
342	Selby and Dale	"	"	6	45
343	Carroll and Arundel	"	"	6	54
344	Carroll and Mackubin	"	"	6	51
345	Carroll and Kent	"	"	6	40

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
346	Kent and Iglehart	High	Mathew	4	46
347	Marshall and Dale	"	"	6	44
348	Marshall and Kent	"	"	6	42
349	Marshall and Mackubin	"	"	6	45
350	Rondo and Arundel	"	"	6	69
351	Rondo and Mackubin	"	"	6	60
352	Iglehart and Arundel	"	"	6	55
353	Iglehart and Mackubin	"	"	6	55
354	Marshall and Arundel	"	"	6	45
355	McBoal and Douglas	Low	"	6	30
356	Douglas and Prairie	"	"	6	30
357	Summit and Third	High	"	12	60
358	Summit and Nelson	"	"	12	62
359	College and Sixth	"	"	6	80
360	Nelson and Virginia	"	"	6	44
361	Nelson and Farrington	"	"	6	44
362	Nelson and Louis	"	"	6	54
363	Nelson and Summit Place	"	"	6	59
364	Carroll and Virginia	"	"	6	69
365	Carroll and Farrington	"	"	6	70
366	Carroll and Louis	"	"	6	72
367	Carroll and Summit Place	"	"	6	79
368	Carroll and Ravoux	"	"	6	82
369	Park Place Park	"	"	4	80
370	Iglehart and Virginia	"	"	6	50
371	Iglehart and Farrington	"	"	6	58
372	Iglehart and Louis	"	"	6	65
373	Douglas and Lisbon	Low	"	6	32
374	Iglehart and St. Peter	High	"	6	78
375	Iglehart and Wabasha	"	"	6	84
376	Iglehart and Summit Place	"	"	6	70
377	Iglehart and Ravoux	"	"	6	77
378	Iglehart and Rice	"	"	6	80
379	Rice and Rondo	"	"	16	77
380	Rice and St. Anthony	"	"	16	75
381	Rice and Martin	"	"	16	72
382	Rice and Fuller	"	"	16	72
383	Rice and Aurora	"	"	16	72
384	Rice and University	"	"	20	73
385	Rice and Ellen	"	"	20	74
386	Rice and Charles	"	"	20	74
387	Rice and Edmund	"	"	20	75
388	Rice and Como	"	"	12	74
389	Tilton and St. Peter	"	"	6	74
390	Smith avenue and Ramsey	Low	"	6	32
391	St. Peter and Martin	High	"	6	73
392	Martin and Park	"	"	6	74
393	Central and Wabasha	"	"	6	77
394	Tilton and Wabasha	"	"	6	80
395	Central and Cedar	"	"	6	72
396	Auroa and Cedar	"	"	6	64
397	Aurora and Robert	"	"	6	76
398	Smith avenue and Sherman	Low	"	6	33
399	Bradley and Seventh, N. W. C.	"	"	6	33
400	Broadway and Fourteenth	"	"	4	35
401	Summit and Dale	High	"	12	45
402	Seventh and Brook	Low	"	6	48
403	Tenth and Cedar, N. W. C.	"	"	20	26
404	Grand and Lawton	High	"	6	47
405	Grand and Floral	"	"	6	44
406	Grand and Oakland	"	"	6	56
407	Grand and Dale	"	"	6	51
408	Grand and St. Albans	"	"	6	50
409	Valley and Broadway	"	"	16	100
410	Grand and Grotto	"	"	6	46
411	Grand and Avon	"	"	6	44
412	Grand and Victoria	"	"	6	44
413	University and Marion	"	"	12	78
414	University and Gaultier	"	"	12	76

LIST OF HYDRANTS—(Continued).

No.	Location	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
415	University and Farrington	High	Mathew	12	76
416	University and Virginia	"	"	12	76
417	Marshall and St. Albans	"	"	12	48
418	University and Arundel	"	"	12	78
419	Dayton and St. Albans	"	"	6	46
420	Dayton and Grotto	"	"	6	45
421	Dayton and Wilton	"	"	6	44
422	Dayton and Fisk	"	"	6	46
423	St. Peter and Aurora	"	"	6	70
424	St. Peter and University	"	"	6	68
425	Park and University	"	"	6	67
426	Cedar and University	"	"	6	58
427	Cedar and Sherburne	"	"	6	50
428	Sherburne, 350 feet east of Cedar	"	"	4	52
429	Hoffman and Seventh	"	"	6	105
430	Fourth, 400 feet west of Maria	"	"	6	95
431	Maria and Seventh	"	"	6	93
432	Maria and Sixth	"	"	6	92
433	Maria and Fifth	"	"	6	93
434	Maria and Fourth	"	"	6	95
435	Maria and Third	"	"	6	97
436	Maria and Conway	"	"	6	98
437	Maria and Ravine	"	"	6	99
438	Maria and Euclid	"	"	6	100
439	Maria and Hudson	"	"	6	96
440	Bates and Plum	"	"	12	82
441	Bates and Hudson	"	"	12	81
442	Bates and Euclid	"	"	12	79
443	Bates and Ravine	"	"	12	77
444	Bates and Conway	"	"	12	76
445	Bates and Third	"	"	12	80
446	Bates and Fourth	"	"	12	75
447	Bates and Fifth	"	"	12	78
448	Bates and Sixth	"	"	12	72
449	Bates and Seventh	"	"	12	78
450	Fifth and Maple	"	"	6	65
451	Third and Maple	"	"	6	68
452	Hudson and Maple	"	"	6	68
453	Valley and Canada	"	"	16	90
454	Seventh and Maple	"	"	16	92
455	Seventh and Hope	"	"	16	59
456	Seventh and Margaret	"	"	16	60
457	Seventh and Beech	"	"	16	69
458	Goodhue and Dousman	Low	"	6	36
459	Goodhue and Cliff	"	"	6	35
460	Grace and Colborne	"	"	6	32
461	Colborne and Jefferson	"	"	6	33
462	Duke and Seventh	"	"	6	32
463	Seventh and Minnehaha	"	"	16	73
464	Seventh and Reaney	"	"	16	70
465	Seventh and Forrest	"	"	16	69
466	Nash and L'Orient	Low	"	6	35
467	Jesse and Fauquier	"	"	6	12
468	Seventh and Jefferson	"	"	16	33
469	Seventh and Fauquier	High	"	16	72
470	Seventh and Cypress	"	"	16	79
471	Seventh and Ross	"	"	16	80
472	Seventh and Earl	"	"	16	83
473	Ross and Earl	"	"	6	80
474	Edmund and Marion	"	"	6	76
475	Fauquier and Cypress	"	"	6	76
476	Fauquier and Earl	"	"	6	75
477	Fauquier and Payne	Low	"	12	6
478	Fauquier and Edgerton	"	"	12	8
479	Fauquier and Bradley	"	"	12	14
480	DeSoto and Fauquier	"	"	12	15
481	DeSoto and Minnehaha	"	"	12	5
482	Fifth, 350 feet west of Maria	High	"	6	92
483	Fauquier and Forest	"	"	6	72

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
484	Fauquier and Mendota	High	Mathew	6	81
485	Fauquier and Arcade	"	"	6	80
486	Lincoln, between Oakland and Dale	"	"	6	55
487	Lincoln and Dale	"	"	6	50
488	Hoffman and Sixth	"	"	6	104
489	Mendota and Reaney	"	"	6	76
490	Ninth and Broadway	Low	"	6	41
491	Oneida and Seventh	"	"	6	30
492	Franklin and Fifth	"	"	4	30
493	Eleventh and Olive	"	"	4	37
494	Martin and Arundel	High	"	6	65
495	Lincoln and St. Albans	"	"	6	52
496	Lincoln and Grotto	"	"	6	44
497	Lincoln and Avon	"	"	6	44
498	Fuller and Arundel	"	"	6	66
499	Fuller and Mackubin	"	"	6	66
500	Fuller and Kent	"	"	6	67
501	Goodhue and Ann	Low	"	6	30
502	Goodhue and Western	"	"	6	30
503	Goodhue and Richmond	"	"	6	31
504	Portland and St. Albans	High	"	6	48
505	Aurora and Kent	"	"	6	68
506	Aurora and Mackubin	"	"	6	66
507	Aurora and Arundel	"	"	6	70
508	Holly and St. Albans	"	"	6	48
509	Holly and Grotto	"	"	6	46
510	Holly and Avon	"	"	6	44
511	Martin and Ravoux	"	"	6	73
512	Martin and Summit Place	"	"	6	75
513	Central and St. Peter	"	"	4	73
514	Maria and Eighth	"	"	6	88
515	Bradley and Seventh, S. E. C	Low	"	6	35
516	Ashland and St. Albans	High	"	6	49
517	Ashland and Grotto	"	"	6	46
518	Ashland and Avon	"	"	6	44
519	Goodrich and Dousman	Low	"	12	31
520	Goodrich and Garfield	"	"	12	30
521	Goodrich and Western	"	"	12	32
522	Eichenwald and Sixth	High	"	6	60
523	Eichenwald and Seventh	"	"	6	60
524	Sinnen and Sixth	"	"	6	58
525	Hague and St. Albans	"	"	6	48
526	Hague and Grotto	"	"	6	46
527	Hague and Miller	"	"	6	44
528	Hague and Fisk	"	"	6	44
529	Selby and St. Albans	"	"	6	46
530	Reaney and Forest	"	"	6	69
531	Reaney and Cypress	"	"	6	76
532	Reaney and Earl	"	"	6	78
533	Irvine Park, North Side	Low	"	4	45
534	Irvine Park, South Side	"	"	4	40
535	Marshall and Victoria	High	"	12	46
536	Marshall and Fisk	"	"	12	48
537	Marshall and Miller	"	"	12	44
538	Marshall and Grotto	"	"	12	45
539	Earl and Minnehaha	"	"	12	80
540	Earl and Beech	"	"	12	80
541	Reaney and Frank	"	"	6	75
542	Laurel and Dale, N. W. C	"	"	6	50
543	Laurel and St. Albans	"	"	6	48
544	Laurel and Grotto	"	"	6	46
545	Laurel and Miller	"	"	6	44
546	Garfield and Prairie	Low	"	6	35
547	Banfil and Smith avenue	"	"	4	40
548	Carroll and Dale	High	"	6	35
549	Fuller and Marion	"	"	6	76
550	Fuller and Jay	"	"	6	75
551	Fuller and Farrington	"	"	6	75
552	Fuller and Virginia	"	"	6	74

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
553	Summit Place and St. Anthony	High	Mathew	6	78
554	Cedar and Viola	"	"	6	55
555	Cedar and Como	"	"	6	56
556	Viola and Jackson	"	"	6	58
557	Seventh and Frank, N. W. C	"	"	16	83
558	Seventh and Frank, N. E. C	"	"	16	83
559	Seventh and Duluth	"	"	16	81
560	Rice and Lafond	"	"	12	75
561	Rice and Arch	"	"	12	75
562	Rice and Pennsylvania	"	"	12	75
563	Rondo and Ravoux	"	"	6	78
564	Rondo and Summit Place	"	"	6	78
565	Williams and Olive	"	"	6	82
566	Olive and Pennsylvania	"	"	6	80
567	Rondo and Louis	"	"	6	77
568	Rondo and Farrington	"	"	6	75
569	Ninth and Smith avenue	Low	"	6	20
570	Franklin and Sixth	"	"	4	30
571	Rondo and Virginia	High	"	6	74
572	Mendota and Beech	"	"	12	70
573	Kittson and Fourth	Low	"	6	65
574	Valley and Warren	High	"	16	65
575	Robert and Valley	"	"	6	60
576	Mendota and Dawson	"	"	12	61
577	Mendota and Francis	"	"	12	61
578	Mendota and High	"	"	12	66
579	Mount Airy and Broadway	"	"	6	70
580	Fourth and Neill	Low	"	12	65
581	Fourth and Willius	"	"	12	65
582	Fourth and Locust	"	"	12	65
583	Mendota and Freemont	High	"	12	68
584	Mendota and Conway	"	"	12	69
585	Point Douglas and Forest	"	"	6	70
586	Point Douglas and Mendota	"	"	6	69
587	Third and Cypress	"	"	6	68
588	Third and Forest	"	"	6	68
589	Third and Mendota	"	"	6	69
590	Third and Arcade	"	"	6	67
591	Hudson and Mendota	"	"	12	66
592	Mt. Airy and Linden	"	"	6	60
593	Mt. Airy and Warren	"	"	6	50
594	Maple and Euclid	"	"	6	68
595	Mt. Airy and Robert	"	"	6	57
596	Webster and Seventh	Low	"	6	30
597	Maple and Ravine	High	"	6	69
598	Fourth and Broadway, N. E. C	Low	"	12	58
599	Maple and Conway	High	"	6	69
600	Viola and Brewster	"	"	6	58
601	Maple and Fourth	"	"	6	65
602	Viola and Park	"	"	6	75
603	Maple and Sixth	"	"	6	69
604	Margaret and Arcade	"	"	6	60
605	Margaret and Mendota	"	"	6	70
606	Ellen and Marion	"	"	6	75
607	Granite and Courtland	Low	"	6	8
608	Granite and Agate	"	"	6	13
609	Granite and Beaver	"	"	6	20
610	Margaret and Forest	High	"	6	68
611	Ellen and Gaultier	"	"	6	76
612	Ellen and Farrington	"	"	6	75
613	Ellen and Virginia	"	"	6	75
614	Margaret and Cypress	"	"	6	65
615	Margaret and Earl	"	"	6	80
616	Mississippi and Case	Low	"	6	30
617	Mississippi and Jenks	"	"	6	30
618	Mississippi and Lawson	"	"	6	28
619	Mississippi and Cook	"	"	6	28
620	Mississippi and Magnolia	"	"	6	23
621	Mississippi and Jessamine	"	"	6	25

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
622	Robert and Thirteenth	Low	Mathew	6	26
623	Acker and Buffalo	"	"	6	14
624	Acker and Elk	"	"	6	13
625	Acker and Courtland	"	"	6	13
626	University and Mackubin	High	"	12	72
627	University and Kent	"	"	12	70
628	University and Dale	"	"	12	68
629	Central avenue, head of Central Park	"	"	6	80
630	Central Park Drive and Summit avenue	"	"	4	90
631	Genesee and Buffalo	Low	"	6	13
632	Ellen and Western	High	"	6	75
633	Ellen and Arundel	"	"	6	74
634	Ellen and Mackubin	"	"	6	73
635	Ellen and Kent	"	"	6	70
636	Aurora and Virginia	"	"	6	75
637	Fourteenth and Robert	Low	"	6	24
638	Payne and Minnehaha	"	"	6	18
639	Reaney and Payne	"	"	6	14
640	Reaney and Edgerton	"	"	6	12
641	Eagle and Spring	"	"	6	70
642	Charles and Marion	High	"	6	76
643	Charles and Gaultier	"	"	6	76
644	Charles and Elfelt	"	"	6	75
645	Charles and Farrington	"	"	6	75
646	Charles and Virginia	"	"	6	75
647	Charles and Western	"	"	6	75
648	Virginia and Marshall	"	"	4	45
649	Decatur and Bedford	Low	"	6	23
650	Decatur and Edgerton	"	"	6	23
651	Beaumont and Preble	"	"	6	23
652	Oakland and Lincoln	High	"	6	50
653	Oakland and Floral	"	"	6	64
654	Oakland and Lawton	"	"	6	74
655	Oakland and Western	"	"	6	80
656	Dakota, at end of bridge	Low	"	6	63
657	Dakota and Fillmore	"	"	6	64
658	Dakota and Fairfield	"	"	6	64
659	Dakota and Indiana	"	"	6	64
660	Dakota and Chicago	"	"	6	64
661	Dakota and Channel	"	"	6	64
662	Toronto and Seventh	"	"	6	32
663	James and Seventh	"	"	6	33
664	Randolph and Seventh	"	"	6	30
665	Warsaw and Seventh	"	"	6	30
666	Audubon and Seventh	"	"	6	29
667	Summit and St. Albans	High	"	12	48
668	Carroll and Victoria	"	"	6	56
669	Carroll and Milton	"	"	6	48
670	Western and St. Clair	Low	"	6	29
671	Armstrong and Seventh	"	"	6	30
672	Bay and Seventh	"	"	6	30
673	Lee and Seventh	"	"	6	30
674	Jefferson and Oneida	"	"	12	40
675	Jefferson and Western	"	"	12	39
676	Webster and Clay	"	"	6	38
677	Maria and Plum	High	"	6	94
678	Maria and Cherry	"	"	6	92
679	Robert, 230 feet north of University	"	"	6	63
680	Grotto and Summit	"	"	6	45
681	Grotto and Portland	"	"	6	44
682	Hoffman and Cherry	"	"	6	94
683	Minnesota and Seventh, S. E. C	Low	"	6	40
684	Dayton and Victoria	High	"	6	46
685	Minnesota and Fourth, S. E. C	Low	"	6	42
686	Selby and Grotto	High	"	6	44
687	Selby and Miller	"	"	6	44
688	Selby and Fisk	"	"	6	45
689	Selby and Victoria	"	"	6	46
690	Hoffman and McLean	"	"	6	90

LIST OF HYDRANTS—(Continued).

No.	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
691	Hoffman and Lizzie	High	Mathew	6	92
692	Hoffman and River	"	"	6	96
693	Portland and Avon	"	"	6	44
694	Margaret and Hope	"	"	6	58
695	Margaret and Greenbrier	"	"	6	62
696	Hoffman and Clermont	"	"	6	95
697	Cherry, 260 feet south of Hoffman	"	"	6	100
698	Ramsey and Western	"	"	6	60
699	Oakland and Ramsey	"	"	6	90
700	Fourth and Arcade	"	"	6	53
701	Western and Milwaukee Short-line	Low	"	6	30
702	Goodrich, 750 feet west of Dale	High	"	6	45
703	Dale and Goodrich	"	"	12	50
704	Sixth, 500 feet west of Maria	"	"	6	90
705	Ninth and Olive	Low	"	6	42
706	Ninth and Neill	"	"	4	45
707	Sixth and Hope	High	"	6	60
708	Martin and Kent	"	"	6	45
709	Jackson and Valley	"	"	6	56
710	Martin and Mackubin	"	"	6	44
711	Greenbrier and North	"	"	12	65
712	Greenbrier and Murray	"	"	12	64
713	Sherburne and Park	"	"	6	71
714	Third and Jackson, N. W. C	Low	"	6	52
715	St. Anthony and Dale	High	"	6	39
716	St. Anthony and Kent	"	"	6	45
717	Arcade and Minnehaha	"	"	12	65
718	St. Anthony and Mackubin	"	"	6	50
719	St. Anthony and Arundel	"	"	6	52
720	St. Anthony and Virginia	"	"	6	60
721	St. Anthony and Farrington	"	"	6	64
722	Wabasha and Park	"	"	4	76
723	St. Anthony and Jay	"	"	6	68
724	St. Anthony and Louis	"	"	6	68
725	St. Anthony and Ravoux	"	"	6	68
726	Sherburne and Brewster	"	"	6	64
727	Brewster and University	"	"	6	67
728	Prairie and Western	Low	"	6	35
729	Martin and Virginia	High	"	6	60
730	Martin and Farrington	"	"	6	62
731	Pennsylvania and L'Orient	Low	"	6	35
732	Martin and Jay	High	"	6	66
733	Martin and Louis	"	"	6	67
734	Glencoe and L'Orient	Low	"	6	32
735	Glencoe and Columbia	"	"	6	30
736	Arcade and Wells	High	"	12	73
737	Arcade and York	"	"	12	68
738	Arcade and Simms	"	"	12	64
739	Arcade and Case	"	"	12	64
740	Arcade and Jenks	"	"	12	63
741	Arcade and Lawson	"	"	12	62
742	Arcade and Cook	"	"	12	60
743	Arcade and Magnolia	"	"	12	60
744	Arcade, in front of Bohn Manufacturing Co	"	"	12	78
745	Fauquier and Weide	"	"	6	76
746	Reaney and Weide	"	"	6	75
747	Reaney and Arcade	"	"	6	70
748	Edmund and Gaultier	"	"	6	73
749	Edmund and Elfelt	"	"	6	72
750	Edmund and Farrington	"	"	6	65
751	Edmund and Virginia	"	"	6	68
752	Edmund and Western	"	"	6	64
753	Como and Thomas	"	"	20	74
754	Como and Claghorn	"	"	20	75
755	Como and Lafond	"	"	20	74
756	Como and Gaultier	"	"	20	75
757	Aurora and Marion	"	"	6	69
758	Aurora and Jay	"	"	6	69
759	Aurora and Farrington	"	"	6	62

LIST OF HYDRANTS—(Continued)..

No.	Location.	Service.	Name of Hydrant	Size of Pipe.	Pressure of Hydrant.
760	Preble and Minnehaha	Low	Mathew	6	20
761	Payne and Beaumont	"	"	6	23
762	Thomas and Arundel	High	"	6	60
763	Thomas and Mackubin	"	"	6	60
764	Conway and Arcade	"	"	6	68
765	Conway and Forest	"	"	6	69
766	Thomas and Kent	"	"	6	65
767	Thomas and Dale	"	"	6	50
768	Francis and Arcade	"	"	6	58
769	River and Maria	"	"	4	87
770	Duke and Jefferson	Low	"	6	40
771	Duke and Cascade	"	"	6	45
772	Blair and Arundel	High	"	6	65
773	Blair and Mackubin	"	"	6	65
774	Blair and Kent	"	"	6	60
775	Blair and Dale	"	"	6	55
776	Iglehart and Dale	"	"	6	42
777	Fairfield and Starkey	Low	"	6	64
778	Fairfield and Custer	"	"	6	64
779	Jackson and Winter	High	"	12	70
780	Jackson and Arch	"	"	12	73
781	Jackson and Robert	"	"	12	70
782	Fairfield and Hubert	Low	"	6	64
783	Fairfield and Robert	"	"	6	63
784	Fairfield and Eaton	"	"	6	64
785	Fairfield and Eva	"	"	6	65
786	Fairfield and Robertson	"	"	6	65
787	Fairfield and State	"	"	6	66
788	Como and Elfelt	High	"	20	75
789	Como and Van Buren	"	"	20	75
790	Como and Minnehaha	"	"	20	73
791	Como and Virginia	"	"	20	71
792	Como and Western	"	"	20	70
793	Indiana, between Dakota and Starkey	Low	"	12	64
794	Front and Dale	High	"	12	60
795	Front and Kent	"	"	12	68
796	Front and Mackubin	"	"	12	73
797	Front and Arundel	"	"	12	70
798	Front and Western	"	"	12	63
799	Randolph and Bay	Low	"	12	35
800	Randolph and View	"	"	12	33
801	Front and Hand	High	"	12	60
802	Front and Auerbach	"	"	12	60
803	Front and Matilde	"	"	12	64
804	Front and Gaultier	"	"	12	68
805	Fillmore and State	Low	"	6	66
806	Front and Marion	High	"	12	72
807	Front and Woodbridge	"	"	12	75
808	Front and Albemarle	"	"	12	74
809	Front and Rice	"	"	12	75
810	Lincoln and Victoria	"	"	6	44
811	Lincoln and Milton	"	"	6	46
812	Grand and Milton	"	"	6	45
813	Hague and Victoria	"	"	6	46
814	Dousman and Yankee	Low	"	6	32
815	Indiana and State	"	"	16	66
816	Indiana and Robertson	"	"	16	66
817	Indiana and Eva	"	"	16	65
818	Eaton and Indiana	"	"	16	64
819	Indiana and Robert	"	"	16	64
820	Indiana and Hubert	"	"	16	64
821	Indiana and Custer	"	"	16	64
822	Indiana and Starkey	"	"	16	64
823	Milwaukee freight yard	"	"	16	65
824	Summit and Minnesota	"	"	6	25
825	Dakota and Wood	"	"	6	60
826	Dakota and Colorado	"	"	6	55
827	Dakota and Delos	"	"	6	50
828	Isabel and State	"	"	12	50

LIST OF HYDRANTS—(Continued).

No	Location.	Service.	Name of Hydrant.	Size of Pipe.	Pressure at Hydrant.
829	Isabel and Greenwood	Low	Mathew	12	48
830	Isabel and Clinton	"	"	12	49
831	Isabel and Robert	"	"	12	50
832	Isabel and Livingston	"	"	12	50
833	Isabel and Starkey	"	"	12	50
834	Isabel and Dakota	"	"	12	48
835	Isabel and Goff	"	"	12	30
836	Isabel and Hall	"	"	12	24
837	Isabel and Stryker	"	"	12	23
838	Isabel and Winslow	"	"	12	24
839	Concord and Bancroft	"	"	12	50
840	Concord and Anita	"	"	12	50
841	Concord and Ada	"	"	12	49
842	Concord and State	"	"	12	48
843	Concord and Robie	"	"	12	49
844	Concord and Winifred	"	"	12	50
845	Concord and Congress	"	"	12	50
846	Concord and Onega	"	"	12	50
847	John and Williams	"	"	6	38
848	Western and Superior	"	"	6	35
849	Robert and Fillmore	"	"	6	60
850	Congress and Robert	"	"	6	50
851	Congress and Clinton	"	"	6	50
852	Congress and Greenwood	"	"	6	49
853	Congress and State, northwest corner	"	"	6	48
854	Minnehaha and Edgerton	"	"	6	18
855	Robie and State	"	"	6	48
856	Robie and Ada	"	"	6	50
857	Robie and Anita	"	"	6	51
858	Robie and Bancroft	"	"	6	53
859	Winifred and State	"	"	6	48
860	Winifred and Ada	"	"	6	48
861	Winifred and Anita	"	"	6	48
862	Winifred and Bancroft	"	"	6	49
863	Congress and State, northeast corner	"	"	6	48
864	Congress and Ada	"	"	6	49
865	Congress and Anita	"	"	6	48
866	Congress and Dunedin Terrace	"	"	6	49
867	Congress and Bancroft	"	"	6	48
868	Hoffman and Short	High	"	6	92

Holly hydrants..... 17
Mathew hydrants..... 851

Total No. of fire hydrants..... 868 of which 64 are in West St. Paul.

LIST OF STREET SPRINKLING HYDRANTS.

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.	Size of Pipe.
1	Sixth and Sibley	10 feet	Holly	2-inch.
2	Fifth and Wakouta	7½ "	"	"
3	Wakouta and Third	3 "	"	"
4	Fort and Third	4 "	"	"
5	Third and Jackson	5 "	"	"
6	Minnesota and Third	5 "	"	"
7	Fifth and Robert	6 "	"	"
8	Robert and Seventh	5 "	"	"
9	Wacouta and Seventh	7 "	"	"
10	Ninth and Cedar	8 "	"	"
11	Eighth and Broadway	6 "	"	"
12	John and Seventh	7 "	"	"
13	Walnut and Seventh	5 "	"	"
14	Kittson and Seventh	10 "	"	"
15	Ninth and St. Peter	5 "	"	"
16	Pine and Tenth	8½ "	"	"
17	Pine and Grove	8 "	"	"
18	Waverly and Westminster	3½ "	"	"
19	Leech and Seventh	In tunnel	"	"
20	Broadway and Fourth	7 feet	"	"
21	Cedar and Seventh	8 "	"	"
22	College and Wabasha	8 "	"	"
23	College and Tenth	4 "	"	"
24	Pleasant and Third	7 "	"	"
25	St. Peter and Third	In tunnel	"	"
26	Franklin and Fourth	In tunnel	"	"
27	Goodrich and Seventh	16 feet	"	"
28	Eleventh and Robert	5 "	"	"
29	Mt. Airy and Mississippi	8½ "	"	"
30	Burr and Collins	11 "	"	"
31	Bradley and Woodward	7 "	"	"
32	Martin and Western	10½ "	"	"
33	Western and Dayton	4 "	"	"
34	Portland and Western	31 "	"	"
35	Laurel and Farrington	13½ "	"	"
36	St. Clair and Seventh	10½ "	"	"
37	Ramsey and Pleasant	7½ "	"	"
38	Mackubin and Selby	33½ "	"	"
39	Summit and Nelson	10 "	"	"
40	Mackubin and Summit	14 "	"	"
41	Dale and Marshall	8 "	"	"
42	Dale and Ashland	28 "	"	"
43	Dale and Grand	8 "	"	"
44	Marshall and Western	10 "	"	"
45	Rondo and Rice	10 "	"	"
46	Central and Wabasha	7½ "	"	"
47	Mackubin and University	10 "	"	"
48	University and Rice	9½ "	"	"
49	Bates and Seventh	9 "	"	"
50	Hudson and Maria	10 "	"	"
51	Mendota and Fauquier	8 "	"	"
52	Oneida and Seventh	8 "	"	"
53	Third and Bates	7 "	"	"
54	Fifth and Maria	7½ "	"	"
55	Chestnut and Franklin	8½ "	"	"
56	Twelfth and Jackson	37 "	"	"
57	Wakouta and Tenth	5 "	"	"
58	Arundel and Holly	19 " east 29 " south	"	"
59	Sherman and Smith	9 "	"	"
60	Grant and Aurora	27½ "	"	"
61	Sixth and Wabasha	In tunnel	"	"
62	Eichenwald and Seventh	10 feet	"	"
63	Sinnen and Seventh	13 "	"	"
64	Reaney and Seventh	8 "	"	"
65	Earl and Seventh	8 "	"	"
66	Locust and Ninth	14 "	"	"
67	Walnut and Summit	36 "	"	"
68	Ninth and Fort	8 "	"	"

LIST OF STREET SPRINKLING HYDRANTS—(Continued.)

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.	Size of Supply Pipe.
69	Grove and Canada	5 feet	Holly	2-inch
70	Mendota and Seventh	11 "	"	"
71	Jackson and Fourteenth	8 "	"	"
72	John and Fourth	8 "	"	"
73	Maple and Conway	10 "	"	"
74	Farrington and Carroll	8 "	"	"
75	Topping and Como			
76	Viola and Grant	27½ "	"	"
77	Neurer and Western			
78	Acker and Mississippi	6 "	"	"
79	Payne and Minnehaha	7 "	"	"
80	Fairfield and Dakota	8½ "	"	"
81	Audubon and Seventh	8 "	"	"
82	Rice and Como	7½ "	"	"
83	Rice and St. P., M. & M. R. R.	6 "	"	"
84	Williams and Olive	2 "	"	"
85	Olmsted and Olive	4 " east 20 " north	" "	" "
86	Neill and Fifth	24 " east 20 " north	" "	" "
87	Canada and Fifteenth	23 "	"	"
88	Warren and Valley	15 " east 20 " north	" "	" "
89	Gaultier and University	20 " east 19 " north	" "	" "
90	Virginia and Western	16 " east 20 " north	" "	" "
91	Farrington and Nelson	34 " west 11 " north	" "	" "
92	Oakland and Floral	7 "	"	"
93	Mackubin and Iglehart	8 "	"	"
94	Acker and Elk	6 "	"	"
95	Summit and Cedar	7 " south 12 " west	Stand-pipe "	" "
96	Iglehart and St. Peter	21 " south 13 " west	" "	" "
97	Ninth and Jackson	22 " north	"	"
98	Sherman and Exchange	7 "	"	"
99	Summit Place and Iglehart	17 "	"	"
100	Summit Place and Martin	5½ "	"	"
101	Jay and Fuller	8 "	"	"
102	University and Dale	8 "	"	"
103	St. Albans and Hague	7 "	"	"
104	Hoffman and Sixth	8 "	"	"
105	Hoffman and Cherry	10 "	"	"
106	Hoffman and McLean	10 "	"	"
107	Seventh and Duluth	8 "	"	"
108	Carroll and Dale	5 "	"	"
109	Grand and Floral	30 "	"	"
110	Dale and Selby	9 "	"	"
111	Farrington and Ellen	7 "	"	"
112	Mackubin and Fuller	5 "	"	"
113	Mackubin and St. Anthony	9 "	"	"
114	Prairie and Garfield	10 "	"	"
115	Charles and Western	10 "	"	"
116	Marion and Charles	8 "	"	"
117	Granite and Mississippi	11 "	"	"
118	Sixth and Broadway	6 "	"	"
119	Minnehaha and Burr	23 " north 3 " west	" "	" "
120	Bedford and Decatur	30 "	"	"
121	Burr and Hopkins	6 "	"	"
122	Maple and Hudson	9 "	"	"
123	Goodrich and Richmond	10 "	"	"
124	Duke and Seventh	7 "	"	"
125	Earl and Minnehaha	7 "	Holly	"
126	Arcade and Reaney	7 "	Stand-pipe	"
127	Otsego and Lafayette	6 "	"	"
128	Cedar and Fifth	7 "	"	"

LIST OF STREET SPRINKLING HYDRANTS—(Concluded.)

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.	Size of Supply Pipe.
129	Grotto and Dayton	10 feet	Stand-pipe	2-inch.
130	Grove and Monroe Place	5 "	"	"
131	Fauquier and Weide	9 "	"	"
132	Arundel and Rondo	9 "	"	"
133	Arcade and York	7 "	"	"
134	Broadway and Thirteenth	6 "	"	"
135	Robert and University	9 "	"	"
136	Como and Lafond	10 "	"	"
137	Congress and Robert	8 "	Holly	"

Hydrants..... 95
Stand-pipes..... 42

Total..... 137
Number placed this year..... 56

3

LOCATION OF VALVES (LOW SERVICE).

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Acker	West line of Mississippi			1						
Armstrong	East line of Seventh			1						
Audubon	East line of Seventh			1						
Alabama	East line of State			1						
Banfil	East line of Seventh		1							
Bay	South line of Seventh			1						
Beaumont	East line of DeSoto			1						
Beaumont	West line of Bedford			1						
Beaumont	East line of Bedford			1						
Becker Place	South line of Hopkins			1						
Bedford	North line of North			1						
Bedford	South line of Minnehaha			1						
Bradley	North line of Partridge			1						
Broadway	On hydrant in Milwaukee freight yard		1							
Broadway	On hydrant south of Third		1							
Broadway	South line of Third					1				
Broadway	North line of Third					1				
Broadway	North line of Third blow off	1								
Broadway	South line of Seventh, on hydrant		1							
Broadway	South line of Seventh					1				
Broadway	North line of Seventh			2				1		
Broadway	At Ninth blow off			1						
Broadway	South line of Grove			2				1		
Broadway	North line of Thirteenth		1							
Bruno	South line of Lafayette			1						
Buffalo	North line of Acker			1						
Buffalo	South line of Granite			1						
Burr	South line of Hopkins			1						
Burr	South line of North			1						
Burr	North line of Collins			1						
Burr	North line of Beaumont			1						
Burr	South line of Fauquier			1						
Canada	North line of Ninth			1						
Canada	South line of Grove			1						
Canada	North line of Grove			1						
Cedar	North line of Third				1					
Cedar	At Sixth blow off	1								
Cedar	South line of Seventh				1					
Cedar	North line of Seventh				1					
Cedar	At Eighth blow off	1								
Cedar	South line of Tenth				1					
Cedar	South line of Twelfth						1			
Cedar	North line of Twelfth			1						
Chestnut	North line of Franklin			1						
Chestnut	South line of Seventh			1						
College	West line of Cedar			1						
College	West line of Wabasha			1						
College	West line of St. Peter			1						
College	West line of Tenth			1						
Collins	West line of Bedford			1						
Collins	East line of Lafayette			1						
Cooper	North line of Ninth		1							
Cooper	North line of Tenth		1							
Cooper	North line of Spruce		1							
Concord	South line of Isabel				1					
Concord	West line of State				1					
Concord	East line of State				1					
Congress	West line of Anita			1						
Congress	East line of State			1						
Congress	West line of State			1						
Congress	East line of Clinton			1						
Congress	East line of Concord			1						
Dakota	North line of Isabel			1						
Dakota	North line of Colorado			1						
Dakota	North line of Plato			1						
Dakota	South line of Indiana			1						
Dakota	North line of Indiana			1						
Decatur	East line of Bedford			1						
DeSoto	South line of Collins			1						

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Douglas	South line of Seventh			1						
Douglas	North line of Seventh			1						
Douglas	South line of Lisbon			1						
Duke	South line of Seventh			1						
Duke	South line of Jefferson			1						
Dousman	South line of Goodhue			1						
Eagle	South line of Seventh			1						
Eighth	East of Neill blow-off	1								
Eighth	East line of Locust		1							
Eighth	West line of Locust		1							
Eighth	East line of Broadway		2							
Eighth	West line of Broadway		2							
Eighth	West line of Cooper		1							
Eighth	East line of Jackson		1							
Eighth	West line of Jackson		1							
Eighth	East line of Minnesota		1							
Eighth	East line of Cedar		1							
Eighth	West line of Cedar		1							
Eighth	East line of Wabasha		1							
Eleventh	East line of Broadway		2							
Eleventh	West line of Jackson			1						
Eleventh	West line of Robert			1						
Eleventh	East line of Cedar			1						
Elm	East line of Exchange		1							
Exchange	East line of St. Peter		1							
Exchange	West line of St. Peter		1							
Exchange	South line of Ninth		1							
Exchange	North line of Seventh		1							
Exchange	North line of Third		1							
Exchange	South line of Third		1							
Exchange	South line of Eagle		1							
Exchange	South line of Chestnut		1							
Exchange	North line of Sherman		1							
Exchange	Center of Wilkin		1							
Edgerton	North line of Minnehaha			1						
Fairfield	South line of Dakota			1						
Fairfield	South line of Starkey			1						
Fairfield	North line of Starkey			1						
Fairfield	South line of Hubert			1						
Fairfield	South line of Eaton			1						
Fairfield	North line of Eva			1						
Fairfield	South line of State			1						
Fauquier	East line of DeSoto				1					
Fifth	West line of Neill			1						
Fifth	West line of Willius			1						
Fifth	East line of John			1						
Fifth	West line of Broadway		1							
Fifth	West line of Rosabel		1							
Fifth	East line of Sibley		1							
Fifth	East line of Jackson		1							
Fifth	West line of Jackson		1							
Fifth	East line of Minnesota		1							
Fifth	East line of Cedar		1							
Fifth	West line of Cedar		1							
Fifth	East line of Wabasha		1							
Fifth	West line of Wabasha			1						
Fifth	West line of St. Peter		1							
Fifth	West line of Washington		1							
Fifth	East line of Seventh		1							
Fifth	East line of Fort		1							
Fifth	West line of Fort		1							
Fifth	East line of Smith avenue		1							
Forbes	North line of Ramsey street			1						
Fort	North line of Third						1			
Fort	North line Third, hydrant and blow off		2							
Fort	South line of Fifth on hydrant		1							
Fort	South line of Sixth on hydrant		1							
Fort	South line of Ninth, hydrant and main		1				1			
Fort	On hydrant between Ninth and Tenth		1							

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Fourth	West line of Kittson				1					
Fourth	At Neill blow-off	1								
Fourth	West line of Locust				1					
Fourth	At John blow-off	1								
Fourth	East line of Broadway				1					
Fourth	West line of Broadway			1						
Fourth	West line of Rosabel			1						
Fourth	West line of Wakouta			1						
Fourth	East line of Jackson			1						
Fourth	West line of Jackson			1						
Fourth	East line of Minnesota			1						
Fourth	East line of Cedar			1						
Fourth	West line of Cedar			1						
Fourth	West line of Wabasha			1						
Fourth	West line of Market			1						
Fourth	East line of Franklin			1						
Fourteenth	West line of Canada			1						
Fourteenth	East line of Jackson			1						
Franklin	North line of Sherman		1							
Franklin	North line of Irvine Park		1							
Franklin	North line of Third		1							
Franklin	North line of Fourth		1							
Franklin	South line of Seventh		1							
Franklin	North line of Seventh		1							
Franklin	South line of Ninth		1							
Fillmore	South line of State			1						
Garfield	North line of Goodrich			1						
Genesee	West line of Mississippi			1						
Granite	West line of Mississippi			1						
Granite	East line of Agate			1						
Goodhue	East line of Seventh			1						
Goodhue	West line of Seventh			1						
Goodrich	East line of Seventh			1						
Goodrich	West line of Seventh, Main and blowoff	1			1					
Grace	East line of Seventh			1						
Grove	West line of Lafayette			1						
Grove	Center of Mississippi						1			
Grove	West line of Mississippi, main blowoff and hydrant		2				1			
Grove	On hydr'nt bet. Canada and Temp'ce		1							
Grove	East line of Jackson						1			
Glencoe	West line of Mississippi			1						
Hopkins	West line of Bradley			1						
Hopkins	East line of De Soto			1						
Indiana	South line of Starkey				1					
Indiana	North line of Starkey					1				
Indiana	South line of Eaton					1				
Indiana	South line of State					1				
Isabel	West line of State				1					
Isabel	East line of Starkey				1					
Isabel	West line of Starkey				1					
Jackson	Blowoff at levee	1								
Jackson	North line of levee		1							
Jackson	South line of Fourth				1					
Jackson	South line of Seventh			1						
Jackson	North line of Seventh			1						
Jackson	North line of Eighth			1						
Jackson	South line of Twelfth				1					
Jackson	North line of Grove			1						
Jackson	South line of Fourteenth			1						
James	East line of Seventh			1						
Jefferson	West line of Seventh				1					
Jesse	South line of Fauquier			1						
John	North line of Fourth			1						
John	North line of Fifth			1						
John	South line of Seventh			1						
John	North line of Seventh		1							
John	South line of Tenth		1							
John	South line of Grove		1							

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
John	North line of Grove		1							
John	South line of Olmsted			1						
John	North line of Olmsted			1						
Kittson	North line of Fourth			1						
Kittson	North line of Fifth			1						
Kittson	South line of Seventh			1						
Kentucky	East line of State			1						
Lafayette	N. line of Bruno, mains and blow off	1	1			1				
Lafayette	N. P. track blow off		1							
Lafayette	South line of Collins					1				
Lee	East line of Seventh			1						
Leech	North line of Goodrich			1						
Leech	North line of McBoal			1						
Leech	North line of Seventh			1						
Locust	North line of Seventh					1				
L'Orient	North line of Thirteenth			1						
McBoal	West line of Wilkin			1						
McBoal	East line of Smith			1						
McBoal	East line of Seventh			1						
McBoal	West line of Seventh			1						
Magnolia	Center of Mississippi			1						
Market	North line of Third		1							
Minnehaha	East line of Jesse			1						
Minnesota	North line of Third			1						
Minnesota	South line of Fifth			1						
Minnesota	South line of Seventh			1						
Minnesota	North line of Seventh		1							
Minnesota	South line of Tenth		1							
Minnesota	South line of Eleventh		1							
Minnesota	South line of Twelfth		1							
Mississippi	N. line of Grove, mains and blow off			3					1	
Mississippi	North line of Nash			1						
Mississippi	North line of Glencoe			1						
Mississippi	South line of Minnehaha			2						
Mississippi	On St. P., M. & M. R. R. blow off			1						
Mississippi	North of St. P., M. & M. right of way			2						
Mississippi	South line of Acker								1	
Mississippi	South of Cayuga			2						
Mississippi	N. line of N. P. mains and blow off			3						
Mississippi	At Magnolia			2					1	
Mississippi	North of Maryland blow off			1						
Mt. Airy	West line of Mississippi			1						
Mt. Ida	West line of DeSoto			1						
Michigan	West line of Seventh			1						
Nash	East line of Mississippi			2						
Nash	West line of Mississippi			2						
Neill	North line of Seventh		1							
Ninth	West line of Neill		1							
Ninth	East line of Locust		1							
Ninth	West line of Locust			1						
Ninth	East line of Broadway			2						
Ninth	West line of Broadway			2						
Ninth	West line of Cooper			1						
Ninth	East line of Jackson			1						
Ninth	West line of Jackson			1						
Ninth	East line of Minnesota			1						
Ninth	East line of Cedar			1						
Ninth	West line of Cedar			1						
Ninth	East line of Wabasha		1							
Ninth	West line of St. Peter			1						
Ninth	East line of Fort			1						
Ninth	West line of Fort			1						
Norris	West line of Canada		1							
Norris	East line of Temperance		1							
North	West line of Bradley			1						
Olive	South line of Seventh		1							
Olive	South line of Grove		1							
Olive	North line of Grove		1							
Olive	South line of Olmsted		1							

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Olive	North line of Olmsted, dividing between high and low service			1						
Oneida	South line of Seventh			1						
Otsego	North line of Lafayette			1						
Partridge	West line of Bradley		1							
Pine	North of Ninth		1							
Pine	North line of Grove			1						
Pine	South line of Olmsted			1						
Pleasant	East line of Third			1						
Pleasant	West line of Third			1						
Pleasant	East line of Walnut			1						
Pleasant	West line of Forbes			1						
Prairie	West line of Douglas			1						
Prairie	West line of Garfield			1						
Prince	East line of Broadway			1						
Payne	North line of Minnehaha			1						
Payne	South line of Fauquier			1						
Pennsylvania	East line of Mississippi			2						
Pennsylvania	West line of Mississippi			2						
Preble	North line of Beaumont			1						
Ramsey	North line of Forbes			1						
Ramsey	South line of Pleasant			1						
Randolph	East line of Seventh			1						
Randolph	West line of Seventh				1					
Richmond	South line of Seventh			1						
Right of way	Blow off 300 ft S. of Como and Phalen			1						
Right of way	South line of Como and Phalen main and blow off			1					1	
Right of way	Blow off 200 ft N. of Phalen and Como			1						
Right of way	At pumping station			1					1	1
Robert	North line of Fairfield			1						
Robert	South line of Third			1						
Robert	North line of Third			1						
Robert	North line of Fourth			1						
Robert	North line of Fifth			1						
Robert	South line of Seventh			1						
Robert	North line of Seventh			1						
Robert	Notth line of Eighth			1						
Robert	North line of Ninth			1						
Robert	South line of Eleventh			1						
Robert	South line of Twelfth			1						
Robert	North line of Twelfth			1						
Robert	South line of Fourteenth			1						
Rosabel	South line of Fourth			1						
Rosabel	North line of Fifth			1						
Rosabel	South line of Seventh			1						
Roble	West line of Anita			1						
Roble	East line of State			1						
St. Clair	East line of Seventh			1						
St. Peter	North line of Third			1						
St. Peter	North line of Fourth			1						
St. Peter	South line of Sixth			1						
St. Peter	South line of Seventh			1						
St. Peter	North line of Seventh			1						
St. Peter	South line of Tenth			1						
St. Peter	North line of Tenth			1						
St. Peter	North line of College, dividing between high and low service			1						
Seventh	West line of Kittson			1						
Seventh	East line of Locust			1						
Seventh	East line of Broadway					1				
Seventh	West line of Broadway					1				
Seventh	West line of Jackson					1				
Seventh	Center of Robert blow off	1								
Seventh	East line of St. Peter				1					
Seventh	East line of Third				1					
Seventh	West line of Eagle					1	1			
Seventh	At Walnut blowoff	1								
Seventh	At Ramsey				1					

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Seventh	West line of Leech				1					
Seventh	South line of McBoal					1				
Seventh	At Goodrich blow-off	1								
Seventh	North line of Yankee					1				
Seventh	On hydrant at Mill, Short Line		1							
Seventh	East line of Colborne					1				
Seventh	On hydrant at Jefferson		1							
Seventh	Blow-off at Jefferson	1								
Seventh	South line of Palace					1				
Seventh	At James blow-off	1								
Seventh	South line of Audubon					1				
Seventh	At Lee blow-off	1								
Sherman	South line of Exchange			1						
Sherman	South line of Wilkin			1						
Sherman	South line of Seventh			1						
Sherman	North line of Seventh			1						
Sherman	South line of Pleasant			1						
Sibley	South line of Third		1							
Sibley	North line of Third			1						
Sibley	South line of Fifth			1						
Sibley	South line of Seventh			1						
Sibley	North line of Seventh		1							
Sixth	West line of Kittson		1							
Sixth	West line of Neill		1							
Sixth	West line of Willius		1							
Sixth	East line of John		1							
Sixth	East line of Olive		1							
Sixth	East line of Broadway		1							
Sixth	West line of Broadway		1							
Sixth	West line of Rosabel		1							
Sixth	East line of Sibley		1							
Sixth	East line of Jackson		1							
Sixth	West line of Jackson		1							
Sixth	East line of Robert		1							
Sixth	East line of Minnesota		1							
Sixth	East line of Cedar		1							
Sixth	West line of Cedar		1							
Sixth	East line of Wabasha		1							
Sixth	West line of Wabasha		1							
Sixth	East line of Exchange			1						
Sixth	East line of Fort			1						
Sixth	West line of Fort			1						
Sixth	West line of Smith avenue			1						
Smith street	West line of Wilkin			1						
Smith street	East line of Seventh			1						
Smith avenue	South line of Seventh			1						
Smith avenue	North line of Seventh			1						
Smith avenue	North line of Smith street			1						
Smith avenue	North line of Ramsey			1						
Smith avenue	North line of Sherman			1						
Smith avenue	North line of Walnut			1						
Smith avenue	South line of Third			1						
Smith avenue	North line of Third			1						
Smith avenue	North line of Sixth			1						
Somerset	West line of John		1							
Somerset	East line of Pine		1							
State	North line of Levee					1				
State	South line of Indiana					1				
State	North line of Morrison					1				
State	North line of Isabel					1				
State	North line of Concord					1				
Summit avenue	West line of Minnesota			1						
Temperance	North line of Eighth		1							
Temperance	North line of Tenth		1							
Temperance	South line of Grove		1							
Temperance	North line of Grove		1							
Tenth	West line of Locust			1						
Tenth	East line of Broadway			2						
Tenth	West line of Broadway		2							

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Tenth	West line of Canada		1							
Tenth	East line of Jackson		1							
Tenth	West line of Jackson		1							
Tenth	West line of Robert			1						
Tenth	East line of Cedar			1						
Tenth	West line of Cedar on hydrant		1							
Tenth	Center of Wabasha		1							
Tenth	West line of St. Peter						1			
Tenth	On hydrant bet. St. Peter and Fort		1							
Tenth	West line of Fort			1						
Third	East line of Broadway			1						
Third	West line of Broadway			1						
Third	East line of Wacouta			1						
Third	East line of Jackson			1						
Third	West line of Jackson			1						
Third	West of Minnesota			1						
Third	East line of St. Peter			1						
Third	West line of Washington			1						
Third	South line of Seventh			1						
Third	North line of Fort			1						
Thirteenth	West line of Pine		1							
Thirteenth	East line of Mississippi			2						
Thirteenth	West line of Mississippi			2						
Thirteenth	East line of Canada			1						
Thirteenth	West line of Canada			1						
Thirteenth	East line of Jackson			1						
Twelfth	East line of Broadway		2							
Twelfth	West line of Jackson, Hydrant and blowoff		2							
Twelfth	West line of Minnesota on Hydrant		1							
Twelfth	East line of Cedar on Hydrant		1							
Toronto	South line of Seventh			1						
Tennessee	East line of State			1						
Wabasha	North line of Third			1						
Wabasha	South line of Fifth			1						
Wabasha	At Seventh			1						
Wabasha	North line of Ninth			1						
Wabasha	South line of Tenth			1						
Wabasha	North line of Tenth			1						
Wabasha	North line of College			1						
Wacouta	North line of Third			1						
Wacouta	South line of Fifth			1						
Wacouta	South line of Sixth			1						
Wacouta	South line of Seventh			1						
Wacouta	North line of Seventh		1							
Wacouta	North line of Eighth		1							
Wacouta	North line of Tenth		1							
Walnut	South line of Exchange		1							
Walnut	South line of Seventh		1							
Walnut	North line of Seventh		1							
Walnut	South line of Pleasant		1							
Warsaw	South line of Seventh			1						
Washington	North line of Chestnut		1							
Washington	South line of Third		1							
Washington	North line of Third		1							
Washington	North line of Fourth		1							
Washington	North line of Fifth		1							
Waverly Place	West line of Lafayette			1						
Waverly Place	East line of John			1						
Webster	South line of Seventh			1						
Webster	North line of Jefferson			1						
Western	South line of Seventh			1						
Western	North line of Seventh			1						
Western	North line of Goodhue			1						
Wilkin	North line of Smith			1						
Willius	North line of Fifth		1							
Willius	South line of Seventh		1							
Winifred	West line of Anita			1						
Winifred	East line of State			1						

LOCATION OF VALVES (LOW SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Yankee	East line of Seventh	....	1	....	....	....	....	....	....	....
Main line old	Gate house at Lake Phalen	....	....	....	....	....	....	1	....	....
Main line old	South line of C. St. P. M. & O. R. R.	....	....	2	....	....	....	....	....	....
Main line old	Seventh street east line of Frank	....	....	....	....	....	....	1	....	....
Main line old	Seventh street east of Earl	1	....	....	....	1	....	....	....	....
Main line old	East of Cypress	1	....	....	....	....	....	....	....	....
Main line old	East of Walsh	1	....	....	....	....	....	....	....	....
Main line old	Payne and Ross	....	....	....	....	1	....	....	....	....
Total		17	146	296	24	25	8	4	5	

Number of valves laid this year.. 35
Total number of valves low service 526

LOCATION OF VALVES (HIGH SERVICE).

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Arundel	North line of Summit		1					
Arundel	South line of Selby		1					
Arundel	North line of Dayton		1					
Arundel	North line of Marshall		1					
Ashland	West line of Western			1				
Ashland	East line of Mackubin			1				
Ashland	East line of Dale			1				
Ashland	West line of Dale			1				
Ashland	East line of Grotto			1				
Aurora	West line of Western			1				
Aurora	East line of Mackubin			1				
Aurora	East line of Western			1				
Aurora	West line of Rice			1				
Aurora	East line of Jay			1				
Aurora	West line of Farrington			1				
Arcade	North line of Seventh				1			
Arcade	North line of Minnehaha				1			
Arcade	South line of St. P. M. & O. R. R.				1			
Arcade	North of Duluth R. R. blowoff	1						
Arcade	South line of Case				1			
Arcade	North line of Case				1			
Bates	North line of Conway				1			
Bates	South line of Seventh				1			
Beech	East line of Seventh			1				
Blair	West line of Western			1				
Blair	East line of Mackubin			1				
Broadway	North line of Valley			1				
Brewster	North line of University			1				
Brewster	North line of Sherburne			1				
Canada	North line of Fifteenth			1				
Canada	South line of Valley			1				
Carroll	West line of Western			1				
Carroll	East line of Mackubin			1				
Carroll	East line of Western			1				
Carroll	West line of Farrington			1				
Carroll	East line of Louis			1				
Carroll	West line of Rice			1				
Conway	West line of Bates			1				
Conway	East line of Bates			1				
Conway	East line of Maple			1				
Conway	West line of Mendota			1				
Conway	East line of Mendota			1				
Cedar	South line of Central			1				
Cedar	North line of Central			1				
Cedar	South line of University			1				
Cedar	North line of University			1				
Cedar	South line of Viola			1				
Central	West line of Wabasha			1				
Central	East line of Cedar			1				
Central	East line of Rice		1					
Central	West line of St. Peter		1					
Cent'l P'k E drive	South of Central avenue		1					
Cent'l P'k drive W	South of Central avenue		1					
Charles	West line of Rice			1				
Charles	West line of Gualtier			1				
Charles	East line of Western			1				
Como	East line of Rice						1	
Como	West line of Rice						1	
Como	South line of Thomas on hydrant		1					
Como	East line of Cleighorn on hydrant		1					
Como	South line of Lafond on hydrant		1					
Como	East line of Gualtier on hydrant		1					
Como	West line of Gualtier						1	
Como	East line of Elfelt on hydrant		1					
Como	North line of Van Buren on hydrant		1					
Como	North line of Minnehaha on hydrant		1					
Como	West line of Virginia on hydrant		1					
Como	East line of Western main and hydrant		1				1	
Como	West line of Western						1	

LOCATION OF VALVES (HIGH SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Como	Blowoff at Culvert			1				
Como	South line of Topping						1	
Como	East line of Dale						1	
Cherry	East line of Hoffman			1				
Dale	South line of Summit				1			
Dale	North line of Summit					1		
Dale	Blowoff at Ashland	1						
Dale	South line of Marshall					1		
Dale	South line of Front							1
Dale	North line of Front main and blowoff			1				1
Dale	Blowoff at Nigger Lake			1				
Dale	North line of Como and Phalen							1
Dale	Blowoff at Cemetery			1				
Dale	Approach to reservoir			1			1	1
Dale	Main and blowoff south of McCarron road			1			1	
Dayton	West line of Summit				1			
Dayton	East line of Western				1			
Dayton	West line of Western				1			
Dayton	East line of Mackubin				1			
Dayton	East line of Dale				1			
Dayton	West line of Dale			1				
Dayton	East line of Grotto			1				
Dayton	West line of Milton			1				
Dayton	East line of Victoria			1				
Dayton	West line of Victoria			1				
Earl	South line of Seventh				1			
Edmund	West line of Rice			1				
Edmund	West line of Gaultier			1				
Edmund	East line of Western			1				
Eichenwald	South line of Seventh			1				
Ellen	West line of Rice			1				
Ellen	West line of Gaultier			1				
Ellen	East line of Western			1				
Ellen	West line of Western			1				
Ellen	East line of Mackubin			1				
Farrington	North line of Summit			1				
Farrington	North line of Laurel			1				
Farrington	South line of Dayton			1				
Farrington	North line of Dayton			1				
Farrington	North line of Nelson			1				
Farrington	South line of Carroll			1				
Fauquier	East line of Seventh			1				
Fauquier	West line of Seventh			1				
Fauquier	West line of Earl			1				
Fauquier	East line of Arcade			1				
Fauquier	West line of Arcade			1				
Fuller	West line of Western			1				
Fuller	East line of Mackubin			1				
Fuller	East line of Western			1				
Fuller	West line of Farrington			1				
Fuller	East line of Rondo			1				
Fuller	West line of Rice			1				
Fifteenth	South line of Valley					1		
Fifteenth	Blow-off, 275 feet west of Canada	1						
Fifth	East line of Bates			1				
Fifth	West line of Bates			1				
Floral	South line of Summit		1					
Fourth	West line of Mendota			1				
Fourth	East line of Maple			1				
Fourth	East line of Bates			1				
Fourth	West line of Bates			1				
Francis	West line of Mendota			1				
Front	West line of Dale				1			
Front	Center of Dale				1			
Front	East line of Mackubin				1			
Front	West line of Western				1			
Front	East line of Western				1			
Front	East line of Gaultier				1			
Grand	East line of Oakland			1				

LOCATION OF VALVES (HIGH SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Grand	East line of Dale			1				
Grand	West line of Dale			1				
Grand	East line of Grotto			1				
Grand	East line of Victoria			1				
Grand	West line of Victoria			1				
Grove	Blow-off at Trout Brook	1						
Grove	East line of Monroe					1		
Grove	Blow-off at Pine	1						
Grotto	South line of Grand			1				
Grotto	South line of Summit			1				
Grotto	North line of Summit			1				
Grotto	South line of Holly			1				
Grotto	South line of Ashland			1				
Grotto	South line of Laurel			1				
Grotto	South line of Hague			1				
Grotto	South line of Selby			1				
Grotto	South line of Dayton			1				
Grotto	South line of Marshall			1				
Goodrich	East line of Dale			1				
Greenbrier	North line of Seventh				1			
Hoffman	South line of Seventh			1				
Hoffman	South line of McLean			1				
Hoffman	North line of River			1				
Holly	West line of Western			1				
Holly	East line of Mackubin			1				
Holly	East line of Dale			1				
Holly	West line of Dale			1				
Holly	East line of Grotto			1				
Hague	West line of Dale			1				
Hague	East line of Grotto			1				
Hague	West line of Miller			1				
Hudson	East line of Bates			1				
Hudson	West line of Bates			1				
Iglehart	West line of Wabasha			1				
Iglehart	East line of Rice			1				
Iglehart	West line of Rice			1				
Iglehart	West line of Summit Place			1				
Iglehart	West line of Louis			1				
Iglehart	West line of Farrington			1				
Iglehart	East line of Western			1				
Iglehart	West line of Western			1				
Iglehart	East line of Mackubin			1				
Jackson	North line of Fifteenth			1				
Jackson	South line of Valley			1				
Jackson	South line of Como					1		
Jackson	North line of Como				1			
Jay	South line of Martin			1				
Jay	South line of Fuller			1				
Kent	South line of Holly		1					
Kent	South line of Ashland		1					
Kent	South line of Laurel		1					
Kent	South line of Selby		1					
Kent	North line of Marshall		1					
Kent	North line of Iglehart		1					
Laurel	West line of Nina			1				
Laurel	East line of Virginia			1				
Laurel	East line of Western			1				
Laurel	West line of Western			1				
Laurel	East line of Mackubin			1				
Laurel	East line of Dale			1				
Laurel	West line of Dale			1				
Laurel	East line of Grotto			1				
Lawton	South line of Summit			1				
Lincoln	West line of Oakland			1				
Lincoln	East line of Dale			1				
Lincoln	West line of Dale			1				
Lincoln	East line of Grotto			1				
Lincoln	East line of Victoria			1				
Lincoln	West line of Victoria			1				

LOCATION OF VALVES (HIGH SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Louis	North line of Nelson			1				
Louis	South line of Carroll			1				
Louis	South line of Rondo			1				
Louis	South line of St. Anthony			1				
Louis	South line of Martin			1				
Louis	South line of Fuller			1				
McCarron Road	Force main south of pumping station						1	
McCarron Road	Blowoff at Trout Brook			1				
McCarron Road	South of McCarron Lake						1	
McCarron Road	Southwest of McCarron Lake blowoff			1				
McCarron Road	West line of Dale						1	
Mackubin	North line of Summit			1				
Mackubin	South line of Holly			1				
Mackubin	South line of Ashland			1				
Mackubin	South line of Laurel			1				
Mackubin	South line of Selby			1				
Mackubin	South line of Dayton			1				
Mackubin	North line of Dayton			1				
Mackubin	North line of Marshall			1				
Mackubin	North of Iglehart			1				
Mackubin	North line of Carroll			1				
Mackubin	South line of Aurora			1				
Mackubin	North line of Rondo			1				
Mackubin	North line of St. Anthony			1				
Mackubin	North line of Martin			1				
Mackubin	South line of University			1				
Mackubin	North line of University			1				
Maple	South line of Hudson			1				
Maple	North line of Euclid			1				
Maple	North line of Conway			1				
Maple	South line of Fourth			1				
Maple	North line of Fifth			1				
Maple	South line of Seventh			1				
Margaret	East line of Forest			1				
Margaret	East line of Mendota			1				
Margaret	West line of Mendota			1				
Margaret	East line of Seventh			1				
Margaret	West line of Seventh			1				
Margaret	East line of Greenbrier			1				
Martin	East line of Rice			1				
Martin	West line of Rice			1				
Martin	West line of Lewis			1				
Martin	West line of Farrington			1				
Martin	East line of Western			1				
Martin	West line of Western			1				
Martin	East line of Mackubin			1				
Maria	North line of Seventh			1				
Maria	South line of Seventh			1				
Maria	South line of Sixth			1				
Maria	South line of Fourth			1				
Maria	South line of Ravine			1				
Maria	North line of Hudson			1				
Maria	North line of Conway			1				
Maria	North line of Plum			1				
Marshall	West line of Western			1				
Marshall	East line of Mackubin			1				
Marshall	East line of Dale			1				
Marshall	West line of Dale				1			
Marshall	West line of Grotto				1			
Marshall	East line of Victoria				1			
Mendota	North line of Hudson				1			
Mendota	North line of Point Douglas blowoff	1						
Mendota	South line of High				1			
Mendota	North line of Margaret blowoff	1						
Mendota	North line of Margaret				1			
Mendota	South line of Seventh blowoff	1						
Mendota	South line of Seventh				1			
Mendota	North line of Seventh			1				
Mendota	South line of Fauquier			1				

LOCATION OF VALVES (HIGH SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Mt. Airy	East line of Linden			1				
Mt. Airy	West line of Warren			1				
Maryland	Center of Dale				2			
Nelson	West line of Summit			1				
Nelson	East line of Farrington			1				
Nelson	East line of Western			1				
Neurer	West line of Western			1				
Nina	North line of Summit			1				
Oakland	South line of Ramsey			1				
Oakland	East line of Lawton			1				
Oakland	South line of Lincoln			1				
Oakland	South line of Summit			1				
Park Place	Park south line of Summit		1					
Park avenue	North line of Martin			1				
Park avenue	South line of University			1				
Park avenue	North line of University			1				
Point Douglas	East line of Mendota			1				
Point Douglas	West line of Mendota			1				
Pine	North line of Grove					1		
Pine	North line of Thirteenth			1				
Pine	North line of Olmsted			1				
Pine	South line of Williams			1				
Portland	West line of Western			1				
Portland	East line of Mackubin			1				
Portland	East line of Dale			1				
Portland	West line of Dale			1				
Rice	South line of Summit			1				
Rice	North line of Summit main and blowoff	1				1		
Rice	North line of St. Anthony					1		
Rice	South line of University					1		
Rice	North line of University main and on hydrant		1				1	
Rice	North line of Ellen on Hydrant		1					
Rice	North line of Charles on Hydrant		1					
Rice	North line of Edmund hydrant and blowoff		2					
Rice	South line of Como						1	
Rice	North line of Como				1			
Robert	South line of Aurora			1				
Robert	South line of University			1				
Robert	North line of University			1				
Robert	North line of Valley			1				
Rondo	West line of Rice			1				
Rondo	East line of Louis			1				
Rondo	West line of Farrington			1				
Rondo	East line of Western			1				
Rondo	West line of Western			1				
Rondo	East line of Mackubin			1				
Reaney	East line of Earl			1				
Reaney	West line of Earl			1				
Reaney	East line of Seventh			1				
Reaney	West line of Seventh			1				
Reaney	East line of Arcade			1				
Reaney	West line of Arcade			1				
Ramsey	South line of Summit			1				
Ross	East line of Seventh			1				
Ross	West line of Earl			1				
Ravoux	South line of St. Anthony		1					
St. Anthony	West line of Rice			1				
St. Anthony	West line of Louis			1				
St. Anthony	West line of Farrington			1				
St. Anthony	East line of Western			1				
St. Anthony	West line of Western			1				
St. Anthony	East line of Mackubin			1				
St. Peter	South line of Iglehart			1				
St. Peter	South line of Tilton			1				
St. Peter	South line of Martin			1				
St. Peter	North line of Martin			1				
St. Peter	South line of University			1				
Selby	West line of Summit			1				
Selby	West line of Nina			1				

LOCATION OF VALVES (HIGH SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Selby	West line of Farrington			1				
Selby	East line of Western			1				
Selby	West line of Western			1				
Selby	East line of Mackubin			1				
Selby	East line of Dale			1				
Selby	West line of Dale			1				
Selby	West line of Milton			1				
Seventh	West line of Hoffman					1		
Seventh	Blowoff S. W. corner Seventh and Hoffman	1						
Seventh	West line of Maple					1		
Seventh	Center of Maple blowoff	1						
Seventh	North line of Beech					1		
Seventh	Blowoff southwest corner Mendota	1						
Seventh	South line of Farrington					1		
Seventh	West line of Earl					1		
Seventh	East of Earl blowoff		1					
Sherburne	East line of Cedar			1				
Sherburne	West line of Park			1				
Sherburne	West line of Rice			1				
Sinnen	South line of Seventh			1				
Suction Main	On right-of-way and blowoff			1				2
Summit	East line of Wabasha			1				
Summit	East line of St. Peter			1				
Summit	East line of Rice			1				
Summit	West line of Rice main and blowoff	1			1			
Summit	South line of Dayton			1				
Summit	North line of Nina			1				
Summit	East line of Western			1				
Summit	East line of Mackubin				1			
Summit	West line of Oakland blowoff	1						
Summit	East line of Dale				1			
Summit	West line of Dale				1			
Summit Place	North line of Nelson			1				
Summit Place	South line of Carroll			1				
Summit Place	South line of Rondo			1				
Summit Place	South line of St. Anthony			1				
Summit Place	South line of Martin			1				
Summit Place	South line of Fuller			1				
Third	South line of Summit			1				
Third	East line of Mendota			1				
Third	West line of Mendota			1				
Third	East line of Maple			1				
Third	East line of Bates			1				
Third	West line of Bates			1				
Thirteenth	At Broadway blowoff	1						
Tilton	East line of St. Peter			1				
Tilton	East line of Rice			1				
Thomas	West line of Western			1				
Thomas	East line of Mackubin			1				
Topping	West line of Como			1				
University	West line of Robert					1		
University	East line of Rice main and blowoff	1				1		
University	West line of Rice				1			
University	West line of Gaultier				1			
University	East line of Western				1			
University	West line of Western				1			
University	East line of Mackubin				1			
Valley	West line of Broadway					1		
Viola	East line of Rice			1				
Viola	East line of Park			1				
Viola	West line of Cedar			1				
Virginia	North line of Summit			1				
Virginia	South line of Selby			1				
Virginia	South line of Dayton			1				
Virginia	North line of Dayton			1				
Virginia	North line of Nelson		1					
Virginia	South line of Iglehart		1					
Wabasha	North line of Iglehart			1				
Wabasha	South line of Central			1				

LOCATION OF VALVES (HIGH SERVICE)—Continued.

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.
Wabasha	North line of Central		1					
Western	South line of Holly main and blowoff	2			1			
Western	South line of Dayton				1			
Western	North line of Dayton					1		
Western	Center of Rondo blowoff	1						
Western	North line of Rondo					1		
Western	North line of University					1		
Western	Blow-off northeast corner Western and Ellen	1						
Western	North line of Lafond					1		
Western	South line of Como					1		
Williams	East line of Mississippi			2				
Williams	East line of Olive			1				
Total		20	35	301	43	22	14	6

Number of valves laid this year on high service.... 102
Total number on high service.... 441
Total number of valves on high and low service... 967

INVENTORY OF STOCK AND TOOLS, DECEMBER 1, 1887.

PIPE FITTINGS, ETC.

132 feet 30-inch pipe.
67 " 24 " "
138 " 20 " "
2,616 " 16 " "
36 " 12 " "
2,216 " 6 " "
318 " 4 " "
31 " 3 " "
7 30-inch curvature pipe.
1 24 " " "
1 20 " " "
2 16 " " "
2 12 " " "
11 16 " " "
14 4 " " "
5 6 " quarter bends.
1 30 " sleeve.
2 24 " "
1 20 " "
3 16 " "
2 12 " "
4 6 " "
23 4 " "
3 20 " plugs.
4 16 " "
7 12 " "
55 6 " "
12 4 " "
2 6 " hoods.
2 4 " "
1 30x6-inch 4-way branch.
1 20x6 " " "
2 16x12 " " "
3 16x6 " " "
3 16x6 " 3-way "
5 16x4 " " "
1 16x3 " " "
1 12x6 " 4-way "
3 12x4 " " "
1 12x12 " 3-way "
6 12x6 " " "
1 12x4 " " "
1 12x3 " " "
18 6x6 " 4-way "
3 16x6 " 3-way "
20 16x4 " " "
6 6x3 " " "
1 4x4 " 4-way "
3 4x4 " 3-way "
1 24x20 Y.
1 30x16 Y.
1 reducer from 20 to 12 inch.
1 reducer from 16 to 12 inch.
3 reducers from 6 to 4 inch.
10,775 pounds of pig lead.
200 pounds of hemp packing.
1 can of blasting powder.
800 feet of fuse.

GATES AND GATE DUPLICATES.

1 20-inch gate.
4 16 " gates.
1 16 " check-valve.
2 12 " gates.
30 6 " "
5 4 " "
5 3 " "
1 2½ " "
31 2 " "
1 1½ " "
28 iron gate boxes.
Miscellaneous lot of gate duplicates.
26 Mathew hydrants.
11 Holly hydrants, old.
Miscellaneous lot of hydrant duplicates.
Kit tools for repairing hydrants.

PIPE LAYING TOOLS.

8 lead ladles.
7 lead pots.
6 lead furnaces.
4 derricks
1 Edison diaphragm pump.
127 shovels.
150 picks.
11 sledge hammers.
6 striking hammers.
10 crowbars.
13 rock drills.
3 plug and feather drills.
6 blasting chains.
70 blasting timbers.
10 set of calking tools.

CONNECTION STOCK AND TOOLS.

250 feet of ½ to 2 inch galvanized iron pipe.
2 scales.
1 lot of pipe fittings from ½ to 2 inch.
25,250 from ½ to 1½ lead pipe, extra strong.
1 kit plumbing tools complete.
3 Mueller tapping machines complete.
378 feet of cement pipe for stop-boxes.
7 set of 4-inch pipe moulds.
350 Bingham & Morgan stop-boxes.
35 corporation cocks ½ to 1 inch.
56 stop and waste.
5 pounds solder.
Miscellaneous lot of duplicates for connections.

INVENTORY OF STOCK AND TOOLS DECEMBER 1, 1887—Continued.

STABLE AND MISCELLANEOUS ACCOUNT.

3 horses.
1 large pipe truck for handling 24 and 30 inch pipe.
1 light truck.
2 buggies.
1 light bob-sleigh.
1 cutter.
4 set single harness.
6 horse blankets.
1 buffalo robe.
A quantity of feed for horses.
1 anvil.
2 farmers' kettles.
98 feet ½-inch hose.
74 meters from ½ to 4 inch.

ENGINEER'S REPORT.

ST. PAUL WATER WORKS PUMPING STATION,
December 1, 1887.

To the Hon. Board of Water Commissioners of the City of St. Paul, Minn.:

GENTLEMEN: I herewith submit the Third Annual Report of these Works, the same being for the year ending November 30, 1887. Engines and boilers are in good condition and have not required one dollar repairs during the year 1887. The total quantity of water pumped during the year was 333,954,800 gallons. The largest quantity of water pumped in a single day was on the 10th day of June, 1,648,800 gallons. The following tabulated record shows the operations of these Works:

ST. PAUL WATER WORKS, ENGINEER'S REPORT.

From Pumping Station for the year ending November, 1887.

OPERATION OF ENGINES NO. 1 AND 2.

MONTHS.	No. of Hours Pumping.		No. of Revolutions.		No. of Gallons Water Pumped.		Average No. of gallons pumped per day.	Pounds Coal Used.		Average Head on Pumps.
	Engine No. 1.	Engine No. 2.	Engine No. 1.	Engine No. 2.	Engine No. 1.	Engine No. 2.		Engine No. 1.	Engine No. 2.	
December, 1886	741	.....	598,800	.....	19,161,600	.....	618,116	69,137	.....	60
January, 1887	686½	757½	490,900	145,000	15,708,800	9,860,000	824,000	58,122	24,729	60
February, "	672	.....	594,600	.....	19,027,200	.....	679,543	61,148	.....	60
March, "	659	85	522,500	78,400	16,720,000	5,331,200	710,361	61,055	11,161	60
April, "	716½	.....	577,500	.....	18,480,000	.....	616,000	52,771	.....	61
May, "	593	151	656,100	185,000	20,995,200	12,580,000	1,083,071	46,761	18,542	62
June, "	467	259	473,100	332,700	15,039,200	22,623,600	1,255,426	41,519	33,620	62
July, "	359	285¼	510,400	373,500	16,332,800	25,398,000	1,346,154	40,080	40,170	63
August, "	559	186½	631,600	237,600	20,156,800	16,156,800	1,177,200	50,089	27,769	61
September, "	444½	70	738,800	77,800	23,641,600	5,290,400	964,000	59,013	10,013	60
October, "	740	4	819,000	4,900	26,508,000	33,200	856,167	68,239	670	60
November, "	692	25	723,900	27,400	23,164,800	1,863,200	834,266	67,026	4,365	60
Total	7,529½	1,223¼	7,337,200	1,458,300	234,790,400	99,164,400		665,954	171,034	

Total number of gallons pumped during the year, 333,954,800.

NOTE—Coal for heating building is included in above statement.

MARTIN FEIST,
Engineer.

INVENTORY OF TOOLS AND STOCK AT THE PUMPING STATION.

1 Vise.
2 Sets pipe, dies and taps, from ¼ to 2 inches.
1 Set screw dies and taps, from ¼ to 1 inch.
2 Pipe cutters.
1 Pair pipe tongs.
1 24 inch pipe wrench.
1 12 inch pipe wrench.
1 20 inch Coe's wrench.
1 14 inch Coe's wrench.
1 8 inch Coe's wrench.
1 6 inch Coe's wrench.
1 Portable blacksmith's forge.
1 Anvil.
2 Pairs of blacksmith's tongs.
1 Sledge hammer.
1 Hand hammer.
1 Soft hammer.
4 Files.
1 Saw.
1 Axe.
1 Hatchet.
1 1½ ton chain block.
35 1 inch ropes.
50 Feet 1¼ inch rubber hose.
200 Feet ¾ inch linen hose.
18 Feet 1 inch steam hose.
3 Oil tanks.
2 1 quart oil cans.
2 Hand oilers.
1 Quart measure.
75 Feet ¾ inch rope and block.
1 12 inch level.
1 Steel coal barrow.
1 Sand barrow.
2 Coal scoops.
1 Fairbanks scale.
1 Fairbanks scale.
1 Grindstone.
6 Large tubular lanterns.
4 Small tubular lanterns.
1 Clock.
1 Writing desk.
2 Chairs.
2 Ladders.
1 Step ladder.
3 Brooms.
1 Good cupboard.
1 Clothing cupboard.
1 Oil and waste cupboard.
1 Work bench.
6 Spittoons.
1 Ratchet brace and bit.
2 8 inch long jack screws.
200 Tons hard coal.
1 Ton soft coal.
½ Cord slabs.
50 Pounds waste.
30 Gallons cylinder oil.
10 Gallons engine oil.
60 Gallons kerosene oil.
3 Gallons boiler compound.
3 Pounds candlewicking.
2 Pounds hemp packing.
8 Pounds piston packing.
5 Pounds tallow.

ATTORNEY'S REPORT.

St. Paul, Minn., December 1, 1887.

To the Honorable Board of Water Commissioners:

Gentlemen:—During the year ending November 30, 1887, no claims for right of way have been presented to the board.

I respectfully call your attention to paragraphs four and five in my report for 1886 in relation to increased water supply.

The motion for a new trial in the case of Wilson & Rogers vs. The Board of Water Commissioners, referred to in my report for 1885, is still in court and undecided.

The judgment for $22,131.78 in favor of J. B. Power against the Board of Water Commissioners was paid and discharged of record June 8, 1887.

In the matter of the appeal of H. D. Gurney from the award of the commissioners for the value of land taken for right of way for the conduit line referred to in my report for 1886. The appeal was sustained by the Supreme Court. The case came on for trial the 18th day of February, 1887, before a jury who rendered a verdict in favor of Gurney for $3,750.00, which was soon after paid and judgment fully discharged.

On the 16th day of September, 1887 summons and complaint was served on the President of the Board by John B. Brisbin, attorney for Olive Biron, claiming damages for destroying mill site and diverting the water from Vadnais Lake. The complaint was demurred to, and notice of trial has not been yet served on the attorneys in the case.

Respectfully submitted,

S. P. Folsom,

Attorney.

TREASURER'S REPORT.

OFFICE OF THE CITY TREASURER,
ST. PAUL, December 1, 1887.

To the Honorable the President and Board of Water Commissioners of the City of St. Paul:

GENTLEMEN: I have the honor to submit to you the following report of the receipts and disbursements of this office from December 1, 1886, to December 1, 1887:

RECEIPTS.

Balance December 1			$2,928.37
Dec. 1.	J. Caulfield, secretary	$ 2,500.00	
" 29.	" "	5,000.00	
Jan. 8.	" "	20,000.00	
" 15.	" "	1,000.00	
" 28.	" "	5,000.00	
Feb. 26.	" "	5,000.00	
Mar. 22.	Water-frontage tax	2,565.03	
" 25.	J. Caulfield, secretary	3,000.00	
" 30.	" "	10,000.00	
April 4.	" "	25,000.00	
" 19.	" "	20,000.00	
" 28.	" "	6,000.00	
May 10.	" "	50,000.00	
" 12.	" "	4,000.00	
" 18.	" "	1,000.00	
" 29.	" "	2,000.00	
June 4.	" "	13,698.15	
" 7.	" "	5,000.00	
" 14.	" "	2,000.00	
" 25.	" "	3,000.00	
" 29.	" "	2,500.00	
July 1.	" "	2,000.00	
" 2.	" "	4,000.00	
" 7.	" "	10,000.00	
" 15.	Water-frontage tax	29,268.22	
" 28.	Proceeds of bonds	202,455.00	
Aug. 29.	J. Caulfield, secretary	40,000.00	
Sept. 28.	" "	20,000.00	
Oct. 27.	" "	15,000.00	
Nov. 5.	" "	8,000.00	
" 10.	Water-frontage tax	662.66	
" 25.	J. Caulfield, secretary	5,000.00	
" 25.	" "	2,803.36	
	Total receipts		527,452.42
			$530,380.79

DISBURSEMENTS.

Water Department warrants paid:		
December	$ 5,426.80	
January	25,663.81	
February	5,501.90	
March	4,272.55	
April	59,772.49	
May	61,586.18	
June	30,877.78	
July	171,069.90	
August	30,471.37	
September	35,755.00	
October	61,167.55	
November	35,963.35	
		$527,528.68
Balance December 1, 1887		$2,852.11
Old Water Company Account balance December 1, 1887 (see statement below)		164.39
		$3,016.50

OLD WATER COMPANY COUPON ACCOUNT.

RECEIPTS.

Balance December 1, 1886	$ 461.47	
Jan. 11. J. Caulfield, secretary	6,416.00	
July 18. " "	6,416.00	
		$13,293.47

DISBURSEMENTS.

Jan. 8. Coupons paid	$ 100.00
" 26. " "	6,160.00
Feb. 19. " "	40.00
Mar. 19. " "	320.00
April 5. " "	40.00
May 10. " "	100.00
July 20. " "	5,480.00
Aug. 8. " "	620.00
Oct. 4. " "	100.00
" 15. " "	80.00
Nov. 16. " "	20.00
	$13,060.00

EXPENSE OLD WATER COMPANY COUPONS, 1887.

Jan. 26.	Exchange and expressage		$30.50	
Feb. 19.	"	"	12.50	
Mar. 19.	"	"	66	
July 20.	"	"	21.92	
Aug. 8.	"	"	2.50	
Oct. 4.	"	"	50	
" 15.	"	"	50	
				$69.08

Total disbursements coupon account	$13,129.08
Balance December 1, 1887	164.39
	$13,293.47

Respectfully submitted,

GEORGE REIS, City Treasurer,

Treas. ex-officio Water Dept.

M. N. Baker 1907

SEVENTH ANNUAL REPORT

OF THE

BOARD OF Water Commissioners

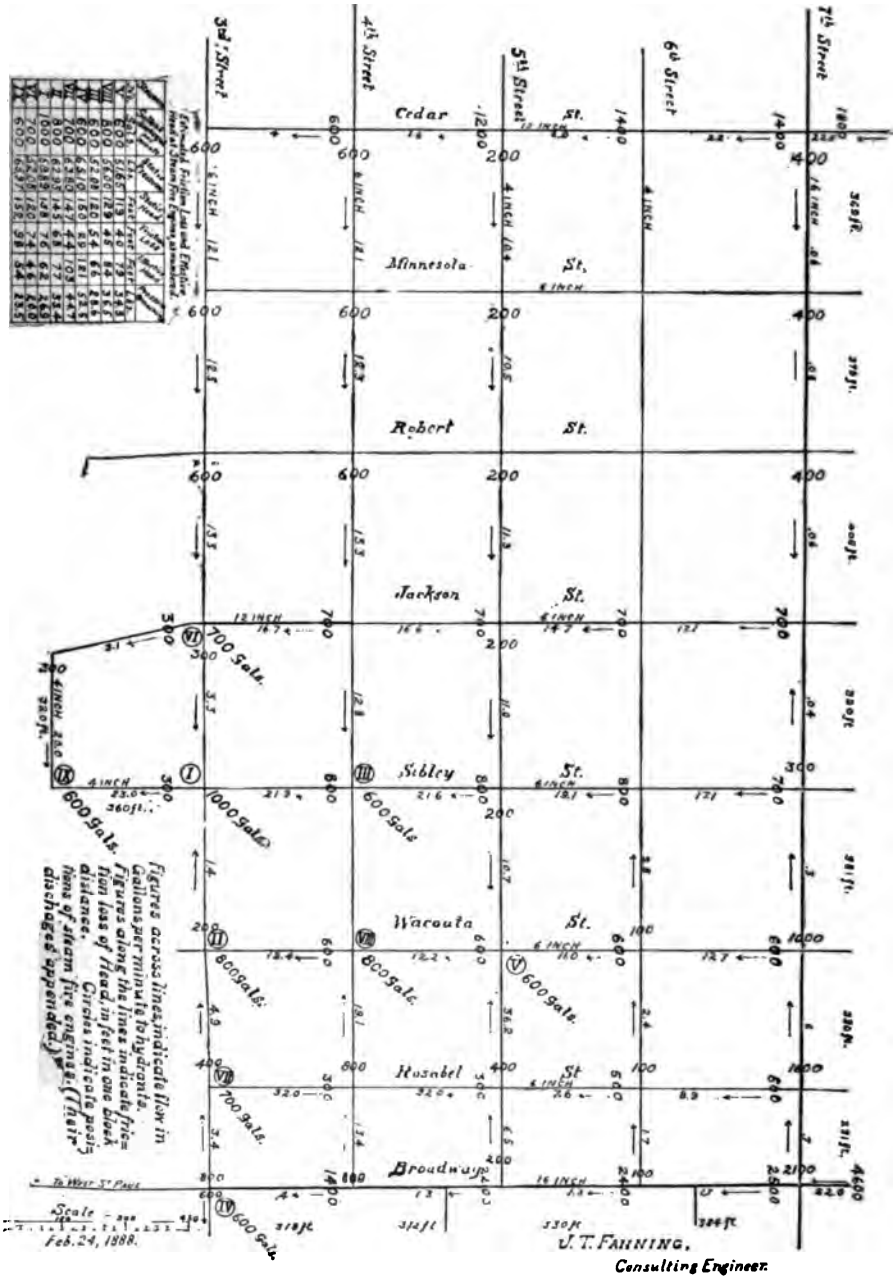
OF THE

CITY OF SAINT PAUL.

DECEMBER 1, 1888.

NPLA

Flow and Friction Losses in Water Pipes in a Section of St Paul, Minn.



SEVENTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS,

OF THE

CITY OF SAINT PAUL.

DECEMBER 1, 1888.

GLOBE JOB OFFICE,
D. RAMALEY & SON, PRINTERS.
1888.

OFFICERS

OF THE

CITY WATER WORKS,

DECEMBER 1, 1888.

BOARD OF WATER COMMISSIONERS:

J. F. HOYT, *President.*
WM. LINDEKE.
C. D. GILFILLAN.
P. H. KELLY.
ROBT. A. SMITH, *Mayor, member ex-officio.*

JOHN CAULFIELD, *Secretary.*
JOHN B. OVERTON, *Superintendent.*
S. P. FOLSOM, *Attorney.*
MARTIN FEIST, *Engineer of Pumping Station.*
JOHN BEHRENS, *Ass't Eng.* " "

SEVENTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE

CITY OF SAINT PAUL,

FOR THE YEAR ENDING NOVEMBER 30, 1888.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1st, 1888,

To The Honorable the Common Council of the City of St. Paul:

Herein please find the Seventh Annual Report of the Board of Water Commissioners, being for the year ending November 30th, 1888.

Some items of leading interest, taken principally from the papers and reports which follow this are here noted:

The bonded indebtedness of the city on account of the water works now amounts to	$2,160,000
Annual interest on same	106,800

New service connections put in this year 1218, being an increase over last year of 146. Total service connections to date, 7,235, of which 4,231 are on low, and 3,004 on high service.

There are now in use 1,134 Fire Hydrants, 162 Street Sprinkling Hydrants, and 1,199 Gates.

Water mains laid this year 28 miles, 3,392 feet. Total of mains now in, 131 miles, 2,876 feet. Estimated to be laid the coming season about 31 miles. Mains have been laid during the summer to and about Merriam and Union Parks, and Hamline is on the list of the Superintendent for next year.

In a business way we would prefer more customers on constructed lines, and fewer of these expensive and comparatively profitless extensions.

At the Pumping Station there have been consumed during the year 530 tons of hard coal, 484,507,680 gallons of water have been pumped, making a daily average of 1,327,418 gallons. The engineer there reports the entire works in good condition, the pumps continuing to work very satisfactorily.

The High Service Reservoir, designed by J. F. Fanning of Minneapolis, and H. H. Harrison of Stillwater, Hydraulic Engineers, has been completed, and is now in use.

Its purpose, plan of construction, elevation, capacity, etc., are matters of record in this office, and which have gone to the public through the daily papers.

McArthur Bros. of this city, contractors on the reservoir, we feel, have faithfully performed their part in its construction, and we want to put on record in this connection our acknowledgement of the valuable services of J. B. Hawley, constructing engineer, and of Thomas Grace, chief inspector.

The estimated cost of the reservoir has been greatly exceeded, mainly on account of the unexpected expense of obtaining suitable puddling material. There has been paid for clay in its natural bed, the sum of $3,780, (ten cents per cubic yard), and for its transportation the sum of $24,718, and about $1,000 have been expended in restoring the clay pit to a presentable shape.

The reservoir lot, fourteen acres, will be enclosed, a keeper's house erected on it, and the unoccupied part, now covered with trees neatly kept, making a pleasant and park-like resort, and from where, on account of the elevation, a fine and extensive view will be had.

The charge for water for sprinkling the streets we shall put for next year at ten cents for 100 feet of street per week; one fifth of what it was four years ago, and one-half the past season's price. After the expense of placing and maintaining hydrants is charged to this fund, the public will be practically furnished water free for street sprinkling purposes.

From the report of the Attorney it will be seen that the Board is eminently exempt from litigation.

We think it proper to make some reference here to the test had last spring of the water supply in the wholesale district.

The comments and conclusions of experienced and scientific men are given and not our own.

Col. J. T. Fanning, in a paper read before the American Society of Civil Engineers, says:

"There were two large fires within one week in the wholesale district in St. Paul at each of which an extensive warehouse with contents was destroyed. The division of the water mains controlling the fire service of this district extends northerly back from the river five blocks, and from east to west, paralled with the river, seven blocks.

The water is supplied by gravity, a 20-inch pipe coming to the northeast corner, and a 12-inch pipe coming to the northwest corner of the district. There is a 16-inch main along the east side, a 16-inch main along the north side, and a 12-inch main along the west side of the district, and this district is grid-ironed across in all its streets with 6 and 4-inch pipes, and has fire hydrants at each street corner.

At each of the fires nine steam fire engines were in use, and it was claimed that a number of the engines were occasionally unable to get a sufficient supply of water, and that by their suctions they were occasionally causing vacuums in the hydrants, and that the force and volume of the fire streams were thus diminished and ineffectual at times.

This claim led to the impression that the water mains in the district had not capacity to supply the fire steamers in use, and to severe criticisms of the Water Commissioners, and also to an immediate raising of fire insurance rates in the wholesale district.

The static head of water under the condition of domestic consumption at that time was determined in the wholesale districts by gauges, and found to be at the location of the lowest hydrant 152 feet head, and at the highest hydrant 119 feet head, with a mean head in the immediate vicinity of the ruins of the two burned warehouses of 135.5 feet, or 58.8 pounds of pressure.

The capacities of the steam fire engines were claimed by those in charge of them to be as follows: four steamers, 600 gallons; two steamers 700 gallons; two steamers, 800 gallons; and one steamer, 1,000 gallons; making a total for the nine steamers of 6,400 gallons per minute. As there were at the fires thirteen streams in play the greater part of the time, this would give to each stream an average of 492 gallons per minute. As I had found in tests of hydrant streams under high gravity pressure that 30 cubic feet, or 225 gallons per minute from a 1¼ inch nozzle made an excellent fire stream, I believed the capacities of the steamers to be stated much higher than their regular working capacities, but decided to base the computation on the claimed discharge of water as a possible excessive condition.

On a skeleton map of the pipes of this district was figured the estimated volumes of flow from the three large surrounding mains into and through the cross-distribution mains toward the hydrants in use, displaying at a glance the assumed volume of flow along each block and in each pipe. (See Plate in front of the title page in this report.)

The loss of pressure along each block in the direction of the hydrants was then computed and summed to obtain the total loss at each hydrant in use by a steamer, the estimated volumes of domestic use being included in computing frictional losses.

The computation indicated that even though the steamers reached the improbable discharge of 6,400 gallons per minute, there remained throughout the district a mean pressure of at least 34 pounds per square inch at the hydrant nozzles, and therefore, if not impossible, it was certainly improbable that there was any approach to a vacuum in any hydrant in use, if its valve was fully open. The claims of the Water Commissioners that the failure of the fire streams was not chargeable to any defect in the water mains being still opposed the Commissioners asked that a thorough test be made of the mains with the

fire steamers again in position as at the time of the last large fire, and that gauges be applied on the mains and hydrants, and their pressures be observed.

After much public discussion of the question, such a test was decided upon, and Mr. J. W. Hill, M. Am. Soc. C. E., was selected to direct the same.

The active test was continued during a period of four hours, which gave ample opportunity to observe the readings of the gauges and the actions of the steamers and their streams. The engines were worked so vigorously during the first hour that the highest readings of their respective water gauges were noted to range from 200 to 275 pounds, and yet it was evident by the readings of the pressure gauges on the hydrants that the combined discharges of all the engines was not so great as their claimed rating, which I have previously stated.

Occasionally, with 40 to 45 pounds of pressure on the hydrant gauge, as a steamer was speeded up, it would apparently be short of water, and its streams would diminish.

Observing on such occassions that the pressure rose in the hydrant gauge and diminished in the steamer's water gauge proportionally as the hose stream diminished, it was evident that the supposed vacuum, that had caused so much discussion, was not in the hydrant, but was probably between the suction valves and the pump piston, and hence a conclusion that the piston speed at its maximum was greater than water could follow through the grid of the valve seat, and that the pump chamber was but partially filled with water at each stroke of the piston.

To further test whether the hydrant gauges were deceptive as to pressure, I directed that a hose be attached to the spare nozzle of a hydrant while steamers were in full work.

A direct pressure stream was thus obtained, which accounted for the pressure indicated by the gauge, and this direct pressure stream through a short hose was about equal in force to the stream from the adjoining steamer delivered through a longer hose."

Mr. Hill, in his report to your committee having charge of the test, says:

"Summing up the results of the investigation, you can assure your council that the capacity of the water mains in the business district described herein, is ample for the most exacting demands of the fire department as now equipped, but should the number or capacity of the steamers be materially increased, then larger mains, as pointed out, should be introduced."

To the question propounded by the Fire Commissioners.

Second. What size mains would be necessary to supply fifteen (15), twenty (20), and twenty-four (24) engines?

Mr. Hill answers:

"Assuming not more than twenty steamers at work at one time in the business district, then the substitution of twelve-inch pipes for the six-inch pipes in Third and Wacouta streets, and for the four-inch pipe in Fifth street, will furnish an ample supply of water for all extraordinary demands."

We will add: Jackson street has now a 12-inch main; also Third, from John to Jackson, and which will be extended in the spring to Seven Corners. (Neither

of these 12-inch mains were in at the time of the test), and it is in our plans to substitute 12-inch for the smaller mains now on Wacouta and Fifth Streets as soon as needed. This accomplished, each alternate street in the wholesale district will be provided with either a 12-inch or 16-inch main—the remainder being 6-inch, thus fully complying with Mr. Hill's suggestions.

Respectfully submitted,

J. F. HOYT.
ROBERT A. SMITH.
P. H. KELLY.
WM. LINDEKE.
CHARLES D. GILFILLAN.

SECRETARY'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1888.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—I respectfully submit to your honorable board my seventh annual report, with accompanying statements, showing in detail under appropriate heads the financial operations of the Water Department for the year ending November 30, 1888. Also, comparative statements of receipts and disbursements from August 10, 1882 (the time of the purchase of the works by the city), to date:

REVENUE.

Cash on hand December 1, 1887		$2,852.11
General water receipts	$130,039.40	
Miscellaneous receipts	26,673.48	
Connections (street services)	27,068.08	
Extensions	5,025.08	
Shutting off and turning on water (penalties)	94.00	
Repairs	246.05	
Construction (new supply)	159.29	
Bonds	300,000.00	
Interest	24,815.22	
Frontage tax	43,062.60	
		$558,083.20
Total		$560,935.31

DISBURSEMENTS.

General maintenance	$ 23,799.81	
Connections (street services)	25,130.97	
Repairs	8,437.95	
Meters	1,935.65	
Extension	288,018.19	
Construction	97,736.31	
Interest	100,280.39	
Front age tax	138.34	
Total		$545,477.61
Balance		$15,457.70

The general water receipts, including high and low service and meters, were $130,039.40, an apparent decrease of $5,347.19 over former year: but to this should be added $19,155.25, which is due from the city of St. Paul for water for fire purposes to June 1, 1888, and which would make an increase over former year of $13,808.06, of which $5,319.94 was from high service, $8,448.35 from low service, and $39.77 from meter consumers.

The miscellaneous receipts from builders, water carts, hydrant streams for flushing sewers, etc., filling cisterns, and for sprinkling streets, were $26,673.48.

Extension account is credited with $5,025.08, of which $414.50 was received from the sale of 829 loads of rock taken from the pipe trenches, $879.41 for scrap iron sold, $3,113.43 from city of St. Paul for lowering and re-laying water mains—on Minnehaha street $129.31, on Jesse street $184.12, and Dale street, from Como avenue north, $2,800.00, caused by the change of grade on those streets; $33.12 from Thornton & Shaw for surplus earth sold them, $14.10 for empty oil barrels, $5.50 for gate box sold John W. Doherty, $512.52 from McArthur Bros. for labor and material furnished them for laying the 36-inch water pipe inside of the reservoir grounds, and $52.50 retained and unclaimed on the pay rolls for the year.

Repair account is credited with $246.05, of which $96.56 was received from the city of St. Paul for damages caused to mains by city contractors on Beaumont and De Sota streets and Sixth and Oak streets, and $149.49 from the Pioneer Press Co. for damages to main on Robert street caused by the caving of the street where their new building is being constructed.

Construction account is credited with $159.29, of which $37.80 was received from W. C. Wilson for release of right of way in W. B. Dean's addition, $119.74 from McArthur Bros. for lumber and tank on the reservoir grounds, and $1.75 from J. B. Hawley for lumber sold.

INTEREST, REPAIRS, EXTENSION, GENERAL MAINTENANCE AND OTHER ACCOUNTS.

$100,280.39 has been paid on account of interest on bonds, $8,437.95 for repair of mains, hydrants and valves, caused principally by change of grade of streets, causing the relaying of mains and resetting of hydrants; $23,799.81 on account of general maintenance, of which $7,079.57 was for maintaining the pumping station and gate house, of which $2,560 was for salaries, $4,103.39 for fuel, $94.80 for machine oil and waste, $37.05 for kerosene oil for lighting,

and $285.33 for insurance, tools and repairs, leaving a balance of $16,720.24 for salaries of all officers, employes, office expense, stationery, and all other expenses necessary in maintaining the works.

$1,935.65 was paid for meters and labor.

$25,130.97 for labor, lead pipe, brass goods, tools and stop-cock boxes for street services.

$288,018.19 was paid on account of city extension, of which $173,214.79 was for cast iron pipe and specials, $77,926.04 for labor in laying water mains and balance due on contract with MacRitchie & Nicols for laying 16-inch pipe across the Mississippi river, $12,325 for fire hydrants, $9,293.75 for valves and valve boxes, $9,935.33 for pig lead and hemp packing, and $5,323.28 for tools, blacksmithing and supplies.

$97,736.31 was paid on account on construction (new supply), of which $92,259.73 was on account of the high service reservoir, and $5,476.58 for labor, lumber, material, engineering and right of way.

All work, except the construction of the reservoir, has been done by days work, as usual. The pay rolls for the year amounted to $114,589.05, and the average monthly employes has been 271.

CONTRACTS.

Contracts have been let during the year amounting to $352,889.25, of which $307,055.22 has been paid, leaving a balance due of $45,834.03. This amount is due McArthur Bros., contractors for high service reservoir. There has also been paid $1,285.31 to MacRitchie & Nicols, of Chicago, contractors for laying the submerged pipe across the river in 1887, being the amount retained for six months after the completion of the works, as per terms of the contract.

BONDED DEBT.

The bonded debt of the city for water works purposes has been increased during the year by the issue of $300,000 of 4½ per cent bonds.

The present bonded debt is $2,160,000, including the $160,000 of the old Water Company's bonds assumed by the city. These bonds will be due in January, and provisions have been made for their payment by the issuance of four and one-half (4½) per cent city bonds. These old bonds were eight (8) per cents. On the 1st of January there is also to be issued one hundred thousand ($100,000) dollars of bonds to pay present indebtedness and for extension. The annual interest on the present debt ($2,160,000) is $106,800, which is paid from the revenues of the work.

FRONTAGE TAX.

There has been collected during the year by the County Treasurer $43,062.60 on account of frontage tax, of which $77.00 was for the tax of 1884 and 1885, $1,118.59 for the year 1886, and $41,867.01 for the year 1887. $138.34 has been refunded on account of erroneous assessments, leaving a balance due of $5,905.40, of which $1,383.53 is for years 1884, 1885 and 1886, and $4,521.87 for the year 1887.

The frontage tax assessment for 1888 has been made, and is now in the hands of the County Treasurer for collection, amounting to $58,539.10.

METERS.

There are now in use 284 meters, an increase of 35. The revenue derived from this source was $36,406.27, an increase of $39.77. This is more than was anticipated a year ago, on account of the reduction of about twenty (20) per cent in meter rates at that time; but several large consumers have been added since, which made up for the reduction.

SERVICES.

During the year 1,218 applications have been made for service connections, of which 406 were on low or gravity service and 812 on high service. The receipts from this source have been $27,968.08, and the disbursements $25,130.97. The total number of applications to date is 7,235, of which 4,231 are in low and 3,004 in high service, an increase of 5,226 since the city purchased the works in 1882.

PLUMBING.

Thirty-one plumbers were granted licenses during the year, and 1,707 permits were issued to them to do work in connection with the introduction and extension of water services, as against 1,610 in 1887, 1,497 in 1886, 1,454 in 1885, and 718 in 1884. The inspection of all their work has been very satisfactorily performed, and all of the plumbers deserve credit for their willingness to comply with our regulations.

CONCLUSION.

I desire to return my thanks to the Board for their uniform kindness and assistance rendered me in the performance of my duties, and also to the Superintendent and to all the employes for the prompt and satisfactory manner in which they have performed their several duties.

Respectfully submitted,

JOHN CAULFIELD,

Secretary.

TRIAL BALANCE, DECEMBER 1, 1888.

	Dr.	Cr.
St. Paul Water Works (original purchase)	$ 510,000.00	
Bond account		$2,160,000.00
General water receipts		636,880.00
Miscellaneous water receipts		112,098.43
Connection account (street services)		6,850.47
Extension account	1,072,930.33	
General maintenance account	103,887.58	
Repair account	23,724.36	
Meter account	10,071.26	
Construction account (new supply)	901,606.02	
Interest account	386,539.48	
George Reis, City Treasurer	15,457.70	
Shutting off and turning on water		651.00
Frontage tax		107,136.05
Total	$ 3,023,616.73	$ 3,023,616.73

RECEIPTS AND DISBURSEMENTS FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888.

Balance December 1, 1887			$ 2,852.11
General water receipts, high service	$ 27,566.65		
" " " low service	66,066.48		
" " " meters	36,406.27		
		$130,039.40	
Miscellaneous receipts, builders	$ 4,146.64		
" " water carts	250.95		
" " flushing sewers and hydrant streams	861.78		
" " filling cisterns	1,527.23		
" " sprinkling streets	19,886.88		
		26,673.48	
Connections—Services—		27,968.08	
Extension		5,025.08	
Shutting off and turning on water (penalties)		94.00	
Repairs		246.05	
Construction		159.29	
Bonds		300,000.00	
Interest (accrued interest and premiums)		24,815.22	
Frontage tax		43,062.60	
			$ 558,083.20
Total receipts			$ 560,935.31

DISBURSEMENTS

General Maintenance—				
Salaries		$ 14,867.50		
Stationery and Printing		811.11		
Miscellaneous		260.37		
Labor		2,357.67		
Material		4,809.27		
Stable { Feed		446.50		
Stable { Repairs		247.30		
			$ 23,799.81	
Connections—				
Labor		$ 3,786.87		
Pipe		6,585.55		
Brass goods and stop boxes		4,260.46		
Tools and miscellaneous		489.09		
			25,130.97	
Repairs—				
Hydrants { Labor	$3,681.17			
Hydrants { Material	248.78	$ 3,929.95		
Valves { Labor	50.96			
Valves { Material	55.20	106.16		
Mains { Labor	3,412.09			
Mains { Material	989.75	4,401.84		
			8,437.95	
Meters—				
Labor		$ 1,062.81		
Freight and meters		872.84		
			1,935.65	
Extensions—				
Pipe and special castings		$ 173,214.79		
Labor and contracts		77,926.04		
Tools and repairs of same		2,530.66		
Advertising		10.95		
Fire hydrants		12,325.00		
Valves and valve boxes		9,293.75		
Lead and hemp packing		9,035.33		
Lumber and material		2,422.03		
Miscellaneous		353.64		
			288,018.19	
Construction—New supply—				
Pipe and special castings				
Labor contracts		$ 1,432.14		
Tools and repairs of same		3.25		
Lumber and material		392.13		
Freight		10.12		
Engineering and right of way		2,188.50		
Miscellaneous and building		1,450.14		
Reservoir		92,259.73		
			97,736.31	
Interest			$ 100,280.39	
Refunded frontage tax			138.34	
Total disbursements				545,477.61
Balance				$ 15,457.70

RECEIPTS AND DISBURSEMENTS FROM AUGUST 10, 1882, TO DECEMBER 1, 1888.

General water receipts, high service	$ 73,019.50		
" " " low service	377,127.91		
" " " meters	186,733.37		
		$ 636,880.78	
Miscellaneous receipts, builders	17,844.48		
" " water carts	3,247.43		
" " flushing sewers and hydrant streams	3,281.06		
" " filling cisterns	12,729.64		
" " sprinkling streets	74,995.82		
		112,098.43	
Connections—Services—			
Extension		125,320.64	
Shutting off and turning on water (penalties)		17,067.15	
Rent		651.00	
Bills payable		2,996.84	
Construction—new supply		493,000.00	
Bonds		998.92	
Interest (accrued interest and premium)		1,650,000.00	
Frontage tax		48,181.28	
		107,366.67	
Total receipts			$3,194,561 71

DISBURSEMENTS.

General Maintenance—				
Salaries		$ 66,076.70		
Stationery and Printing		3,770.48		
Miscellaneous		2,001.65		
Labor		9,902.64		
Material		19,132.18		
Stable: Feed		1,902.12		
Stable: Repairs		1,075.56		
			$ 103,861.33	
Connections—				
Labor		$ 63,514.66		
Pipe		33,658.98		
Brass goods and stop boxes		17,967.21		
Tools and miscellaneous		3,328.57		
			$ 118,469.42	
Repairs—				
Hydrants: Labor	$12,565.06			
Hydrants: Material	1,038.57	$ 13,603.63		
Valves: Labor	163.27			
Valves: Material	141.58	304.85		
Mains: Labor	11,561.87			
Mains: Material	1,379.70	12,941.57		
			$ 26,850.05	
Meters—				
Labor		$ 2,117.38		
Freight and meters		7,824.88		
			$ 9,942.26	
Extensions—				
Pipe and special castings		$ 574,962.32		
Labor and contracts		346,715.61		
Tools and repairs of same		11,353.51		
Advertising		103.13		
Fire hydrants		55,313.00		
Valves		49,385.21		
Lead and hemp packing		39,195.22		
Lumber and material		10,257.85		
Miscellaneous		2,951.20		
			$1,090,237.05	
Construction—New supply—				
Pipe and special castings		$ 174,985.58		
Labor contracts		148,850.76		
Tools and repairs of same		4,719.95		
Lumber and material		68,537.80		
Freight		9,352.78		
Engineering and right of way		85,098.65		
Miscellaneous, building, etc.		15,097.60		
Reservoir		95,149.40		
			$ 901,792.52	
Interest			434,720.76	
Refunded frontage tax			230.62	
Bills payable			493,000.00	
Total disbursements				$3,179,104 01
Balance				$ 15,457.70

STATEMENT SHOWING AMOUNT PAID THE CITY TREASURER AND WARRANTS DRAWN AGAINST SAME, FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888.

1887—				
December 1	Balance in treasury as per last report			$2,852.11
December 1	Cash	$1,500.00		
December 6	Cash	3,000.00		
December 22	Cash	3,000.00		
December 28	Cash	2,000.00		
December 30	Cash	3,000.00		
			$12,500.00	
1888—				
January 3	Cash	2,000.00		
January 11	Cash	8,000.00		
January 28	Cash	2,000.00		
			12,000.00	
February 18	Cash	4,000.00		
February 23	Cash	2,500.00		
			6,500.00	
March 12	Cash	4,000.00		
March 26	Cash	4,000.00		
March 31	Cash from county treasurer, frontage tax	1,881.49		
			9,881.49	
April 5	Cash proceeds of $300,000 bonds and accrued int.		300,975.00	
May 19	Cash	5,000.00		
May 29	Cash	5,000.00		
			10,000.00	
June 18	Cash	5,000.00		
June 27	Cash	5,000.00		
			10,000.00	
July 23	Cash	20,000.00		
July 28	Cash from county treasurer, frontage tax	39,545.92		
July 30	Cash	10,000.00		
			69,545.92	
August 18	Cash		30,000.00	
September 15	Cash	23,840.22		
September 28	Cash	30,000.00		
			53,840.22	
October 24	Cash		10,000.00	
November 12	Cash	14,000.00		
November 20	Cash	5,000.00		
November 22	Cash	6,000.00		
November 22	Cash from county treasurer, frontage tax	1,635.19		
November 28	Cash	6,205.38		
			32,840.57	
				558,083.20
	Total receipts			$560,935.31

WARRANTS DRAWN AGAINST SAME.

1887—				
December 1...	Warrant No. 2945	$5,196.24		
December 6...	" 2946 to 2968 inclusive	9,769.09		
1888—			$14,965.33	
January 3.....	" 2969	3,354.67		
January 11...	" 2970 to 3000 inclusive	7,437.24		
			10,791.91	
February 21..	" 3001 to 3026 inclusive		7,981.66	
March 13.....	" 3027	3,830.21		
March 27.....	" 3028 to 3052 inclusive	1,718.23		
			5,548.44	
April 2	" 3053	4,070.42		
April 6.....	" 3054 to 3080 inclusive	178,293.48		
April 26.....	" 3081 to 3089 inclusive	9,529.97		
			191,893.87	
May 1.....	" 3090	6,552.48		
May 7.....	" 3091 to 3115 inclusive	15,448.31		
May 10.....	" 3116	4,505.62		
May 22.....	" 3117 to 3133 inclusive	6,609.37		
			33,115.78	
June 2	" 3134	12,222.17		
June 12	" 3135 to 3169 inclusive	10,985.83		
			23,208.00	
July 2.....	" 3170	16,442.11		
July 12.....	" 3171 to 3221 inclusive	23,759.96		
July 24	" 3222 to 3228 inclusive	3,331.75		
			43,533.82	
August 1.....	" 3229	15,747.90		
August 9.	" 3230 to 3270 inclusive	23,708.06		
			39,455.96	
September 1..	" 3271	16,367.99		
September 10	" 3272 to 3310 inclusive	32,768.80		
September 21	" 3311 to 3314 inclusive	3,937.53		
			53,074.32	
October 1	" 3315	14,046.63		
October 10.....	" 3316 to 3350 inclusive	54,862.00		
October 24.....	" 3351 to 3362 inclusive	4,047.50		
			72,956.13	
November 1..	" 3363	13,069.27		
November 10.	" 3364 to 3392 inclusive	31,649.81		
November 22.	" 3393 to 3401 inclusive	4,233.31		
			48,952.39	
				545,477.61
	Balance in city treasury			$15,457.70

BOND ACCOUNT,

Bonds Authorized by Legislature.	Amount of Bonds Authorized.	Date of Bonds Issued.	When due.	Amount of Bonds Issued.	Rate.
February 10, 1881.	$ 600,000	Water Co's Bonds (assumed by city.....	Jan. 10, '89.	$ 160,000	8 per ct.
January 26, 1883...	500,000	City bonds, June 1, 1882.....	30 years	350,000	4 per ct.
February 21, 1885.	800,000	City bonds, August 1, 1883....	30 years.....	150,000	5 per ct.
January 31, 1887...	200,000	City bonds, April 1, 1884.....	25 & 30 ye'rs	600,000	5 per ct.
January 31, 1887 To rede'm Water Co's bonds.....	160,000	City bonds, April 1, 1885	30 years.....	400,000	5 per ct.
		City bonds, May 2, 1887.....	30 years.....	200,000	4½ p'r ct
		City bonds, March 1, 1888.....	30 years.....	300,000	4½ p'r ct
Total Authorized.	$ 2,260,000			$2,160,000	

WARRANTS DRAWN AGAINST SAME.

1887—				
December 1...	Warrant No. 2945	$5,196.24		
December 6...	" 2946 to 2968 inclusive	9,769.09	$14,965.33	
1888—				
January 3.....	" 2969	3,351.67		
January 11...	" 2970 to 3000 inclusive	7,437.24	10,791.91	
February 21..	" 3001 to 3026 inclusive		7,981.66	
March 13.....	" 3027	3,830.21		
March 27.....	" 3028 to 3052 inclusive	1,718.23	5,548.44	
April 2	" 3053	4,070.42		
April 6.....	" 3054 to 3080 inclusive	178,293.48		
April 26.....	" 3081 to 3089 inclusive	9,529.97	191,893.87	
May 1.....	" 3090	6,552.48		
May 7.....	" 3091 to 3115 inclusive	15,448.31		
May 10.....	" 3116	4,505.62		
May 22.....	" 3117 to 3133 inclusive	6,609.37	33,115.78	
June 2	" 3134	12,222.17		
June 12	" 3135 to 3169 inclusive	10,985.83	23,208.00	
July 2.....	" 3170	16,442.11		
July 12.....	" 3171 to 3221 inclusive	23,759.96		
July 24	" 3222 to 3228 inclusive	3,331.75	43,533.82	
August 1.....	" 3229	15,747.90		
August 9.	" 3230 to 3270 inclusive	23,708.06	39,455.96	
September 1..	" 3271	16,367.99		
September 10	" 3272 to 3310 inclusive	32,768.80		
September 21	" 3311 to 3314 inclusive	3,937.53	53,074.32	
October 1	" 3315	14,046.63		
October 10.....	" 3316 to 3350 inclusive	54,862.00		
October 24.....	" 3351 to 3362 inclusive	4,047.50	72,956.13	
November 1..	" 3363	13,069.27		
November 10.	" 3364 to 3392 inclusive	31,649.81		
November 22.	" 3393 to 3401 inclusive	4,233.31	48,952.39	
				545,477.61
	Balance in city treasury			$15,457.70

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888.

Date of Contract.	With Whom and for What Purpose.	Amount of Contract.	Amount Paid.	Amount due Dec. 1, 1888.
1887—				
December 1...	MacRitchie & Nicols, Chicago, Ill., balance due for submerged pipe	$1,285.31	$1,285.31	.....
December 5...	McArthur Bros., St. Paul, high service reservoir	127,993.50	82,159.47	$45,834.03
December 10..	R. D. Wood & Co., Philadelphia, Pa., hydrants	12,325.00	12,325.00	.....
1888—				
January 6.....	Shickle, Harrison & Howard Iron Co., St. Louis, Mo., cast iron pipe	173,039.31	173,039.31	.....
January 9.....	The Thomas & Wentworth Manufacturing Co., Milwaukee, Wis., brass goods	1,609.20	1,609.20	.....
January 23...	A. W. Morgan, Buffalo, stop cock and valve boxes	4,425.50	4,425.50	.....
January 28...	The Galvin Brass and Iron Works, Detroit, Mich., valves	5,886.65	5,886.65	.....
February 2...	Jas. Claffey, St. Paul, drayage	3,180.04	3,180.04	.....
April 10.....	Northwestern Shot Co., St. Paul, 2 cars lead pipe	3,130.56	3,130.56	.....
April 10.....	H. C. McNair, St. Paul, 3 cars pig lead	4,602.99	4,602.99	.....
May 24.....	John Dowlan & Sons, St. Paul, coal, etc	3,943.94	3,943.94	.....
June 1.....	E. S. Norton, St. Paul, clay for reservoir	98.84	98.84	.....
June 21.....	Hodgman Bros., St. Paul, 3 cars pig lead	3,001.09	3,001.09	.....
July 12.....	The Trustees of the German Lutheran Association, St. Paul, clay for reservoir	3,685.00	3,685.00	.....
July 26.....	Hodgman Bros., St. Paul, lead pipe	2,068.74	2,068.74	.....
September 10	Northwestern Shot Co., St. Paul, pig lead	1,912.58	1,912.58	.....
November 5..	H. P. Rugg & Co., St. Paul, lead pipe	701.00	701.00	.....
	Total	$352,889.25	$307,055.22	$45,834.03

STATEMENT SHOWING AMOUNT DUE THE WATER BOARD ON DECEMBER 1, 1888.

	From City of St. Paul—		
	Water for fire purposes for six months to June 1, 1888	$19,155.25	
	Water for fire purposes for six months to Dec. 1, 1888	22,284.55	
August 10, 1882	Repairing main on Lafayette avenue, caused by sewer contractor	12.56	
August 29, 1882	Repairing gate box on East Seventh street, caused by paving contractor	5.25	
September 6, 1882	Repairing main on Westminster street, caused by sewer contractor	1.75	
June 9, 1884	Repairing main on Robert street, caused by settling of service sewer	54.86	
September 2, 1884	Repairing main on Pearl street, caused by settling of service sewer	20.21	
Septemb'r 11, 1884	Repairing main on Summit and Selby avenues, caused by sewer contractor	8.00	
November 18, 1886	Balance due for repairing main in Becker Place, caused by sewer contractor	10.00	
June 12, 1888	Relaying water main on Lafayette avenue, caused by change of grade	791.50	
June 12, 1888	Raising water main on Earl near Beech, caused by change of grade	118.50	
Septemb'r 10, 1888	Raising 6 inch water main on Mississippi street, caused by change of grade	312.50	
November 1, 1888	For hydrant streams for flushing sewers, etc	83.25	
October 20, 1888	Putting in service pipe police station, Merriam Park	17.50	
November 24, 1888	Putting in service pipe flush tank University and Dale	8.15	
			$42,883.83
Balance frontage tax assessment for 1884, 1885, 1886 and 1887		5,905.40	
Frontage tax assessment for 1888		58,539.10	
			64,444.50
From builders		.....	600.00
From street sprinkling contractor		.....	2,838.50
From service connections		.....	1,500.00
Total		.....	$112,266.83

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Number of Vouchers.	Month.	Total Amount.	Gene			
			Salaries.	Stationery and Printing.	Miscellaneous.	To rep st
2945 to 2968, inclusive...	December, 1887	$14,965.33	$1.148.32	$83.09	.....	
2969 to 3000 "	January 1888	10,791.91	1,253.57	158.58	14.10	
3001 to 3026 "	February " ...	7,981.66	1,310.82	38.71	73.86	
3027 to 3052 "	March " ...	5,548.44	1,210.82	24.85	3.91	
3053 to 3089 "	April " ...	191,893.87	1,210.82	48.03	.....	
3090 to 3133 "	May " ...	33,115.78	1,325.82	112.22	60.00	
3134 to 3169 "	June " ...	23,208.00	1,225.82	105.40	17.00	
3170 to 3228 "	July " ...	43,533.82	1,225.82	75.99	55.75	
3229 to 3270 "	August " ...	39,455.96	1,325.82	39.49	.....	
3271 to 3314 "	September," ...	53,074.32	1,225.82	28.25	17.45	
3315 to 3362 "	October " ...	72,956.13	1,153.32	33.95	.....	
3363 to 3401 "	November " ...	48,952.39	1,250.82	62.55	18.30	
Totals.....	....	$545,477.61	$14,867.59	$811.11	$260.37	$

TIME —				
From August 10, 1882 to December 1, 1882	$25,937.61	$786.10	$239.13	$187.59
From Dec. 1, 1882, to " 1, 1883	336,959.86	3,787.00	558.90	349.65
From Dec. 1, 1883, to " 1, 1884	909,902.70	8,773.67	521.39	322.15
From Dec. 1, 1884, to " 1, 1885	522,971.24	12,311.70	465.29	245.40
From Dec. 1, 1885, to " 1, 1886	310,326.31	11,836.17	458.07	330.14
From Dec. 1, 1886, to " 1, 1887	527,528.68	13,714.47	716.59	306.35
From Dec. 1, 1887, to " 1, 1888	545,477.61	14,867.59	811.11	260.37
Totals.....	$3,179,104.01	$66,076.70	$3,770.48	$2,001.65

LIST OF VOUCHERS PAID FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888.

DECEMBER, 1887.

No. of Voucher	Name.	Claim.	Amount.
2945	John Caulfield, Secretary, St. Paul	Pay roll for November, 1887	$ 5,196.24
2946	George Reis, City Treasurer "	Interest due December 1, 1887	7,017.50
2947	Eric Nystrom, St. Paul "	Estimate No. 1 and final ditching, etc.	816.55
2948	National Meter Co., New York	Fifteen meters	262.08
2949	Shickle, Harrison & Howard Iron Co., St. Louis, Mo.	Two twelve inch sleeves	11.40
2950	Pioneer Press Co., St. Paul	Two meter books	13.50
2951	J. W. Cunningham & Co., "	2000 envelopes and printing	5 75
2952	John Martin Lumber Co., "	Lumber	10.49
2953	Donaldson, Ogden & Co., "	Lantern fixtures	2.00
2954	St. Paul Brass Works "	Block tin and brass goods	151.38
2955	J. G. Duggan & Bro., "	Blacksmithing	30.60
2956	Geo. J Mitsch & Co., "	Glass, putty and paint	2.25
2957	Ed McNamee, "	Feed	26.55
2958	P. H. Kelly Mercantile Co., "	Powder, oil and fuse	126.15
2959	Farwell, Ozmun, Kirk & Co., St. Paul	Tools	1.63
2960	Joseph Bulena, St. Paul	Sharpening tools	22.55
2961	Slater & Riley, "	Horse shoeing	7.60
2962	John Bell, "	Lime and cement	27.45
2963	Henry E. Wedelstaldt, "	Stationery	9.29
2964	Martin Feist, "	Meals for men cleaning conduit	12.50
2965	Adam Decker, "	One galvanized sprinkler	1.25
2966	H. P. Rugg & Co., "	Lead and iron pipe and fittings	129.47
2967	George Reis, City Treasurer, St. Paul	Local assessments, paving, etc	638.26
2968	Prendergast Bros, St. Paul	Plumbing and repairs on furnace	442.89
	Total		$ 14,965.33

LIST OF VOUCHERS—*Continued.*

JANUARY, 1888.

No.	Name	Claim.	Amount.
2969	John Caulfield, Secretary, St. Paul	Pay roll, December 1887	$ 3,354.67
2970	George Reis, City Treasurer, "	Interest due January 10, 1888	6,416.00
2971	E. M. Hallowell & Co., "	One sleigh and repairs	59.00
2972	Cortland Wagon Co., "	One sleigh robe	10.00
2973	Robert Seeger, "	Gasoline	4.86
2974	Fielding Bros., "	Re-laying pavement	90.97
2975	The Dispatch Printing Co., "	Adv'rtism't, proposals for brass goods	3.38
2976	Quinby & Abbott, "	Repairing office chair	1.90
2977	H. P. Rugg & Co., "	Galvanized pipe	8.28
2978	E. McNamee "	Feed	17.93
2979	Pioneer Press Co., "	Job printing and advertising	53.95
2980	J. T. Fanning, Minneapolis,	Professional services	64.50
2981	Eric Nystrom, St. Paul	Repairing outlet, Pleasant Lake	36.25
2982	Farwell, Ozmun & Jackson, St. Paul	One pair scales	3.45
2983	John Martin Lumber Co., "	Lumber	5.00
2984	Slater & Riley, "	Horse shoeing	1.75
2985	J. S. Burris, "	8,000 brick	68.00
2986	Rogers & Ordway, "	Pipe fittings	5.77
2987	Thomas Brennan, "	Lumber	12.10
2988	D. Ramaley & Sons, "	Job printing	14.50
2989	Pioneer Press Co., "	Daily six months to January 1, 1888	4.00
2990	St. Paul Daily Globe, "	Daily from Nov. 1, '87 to Feb. 1, 1888	2.55
2991	P. H. Kelly Mercantile Co., "	Powder, fuse and nails	58.35
2992	J. G. Duggan & Bro., "	Sharpening tools, etc	29.20
2993	Joseph Bulena, "	Sharpening tools, etc	18.40
2994	John Caulfield, Secretary, "	Bills paid and attached to vouchers	126.45
2995	Charles Friend, "	Harness repairs	4.10
2996	Adam Decker, "	Hardware	4.00
2997	Henry E. Wedelstaedt, "	Mapping paper and stationery	76.53
2998	Bazille & Partridge, "	Replacing glass broken in excavating	68.62
2999	A. Allen, "	Duplicate payment refunded	37.65
3000	Lehigh Coal and Iron Co., "	Coal and wood	129.50
	Total		$ 10,791.91

LIST OF VOUCHERS—*Continued.*

FEBRUARY, 1888.

No.	Name.	Claim.	Amount.
3001	John Caulfield, Secretary, St. Paul	Pay roll for January	$ 3,688.96
3002	George Reis, City Treasurer, "	Interest due February 1, 1888	3,759.35
3003	J. B. Overton, Sup't., "	Expenses to St. Louis Pipe Foundry	47.70
3004	J. J, Watson Bros. & Hyndman, St. Paul	Insurance	39.75
3005	John Rogers, Jr. & Bro., St. Paul	Insurance	24.75
3006	H. E. Wedelstaedt, "	Stationery	10.66
3007	Prendergast Bros., "	Furnace register	3.60
3008	D. Ramaley & Sons, "	Job printing	14.55
3009	Pioneer Press Co., "	Warrant book	10.00
3010	J. G. Duggan & Bro., "	Blacksmithing	57.40
3011	C. Collins, "	Blacksmithing	69.07
3012	George Mitsch & Co., "	Blacksmithing	4.91
3013	Slater & Riley, "	Horse shoeing	2.15
3014	George Mitsch, "	Blacksmithing	1.25
3015	St. Paul Brass Works, "	Brass goods, block tin and repairs	31.71
3016	E. McNamee, "	Feed	15.53
3017	Farwell, Ozmun, Kirk & Co., "	Tools	2.25
3018	P. H. Kelly Mercantile Co., "	Powder, oil and fuse	68.93
3019	Robinson & Cary, "	Valves, packing, etc	15.66
3020	A. D. Smith & Co., "	Turning six mauls	1.20
3021	Adam Decker & Co., "	Tools	1.20
3022	Rogers & Ordway, "	Pipe and fittings	37.48
3023	John Caulfield, Secretary, "	Petty bills paid per voucher	42.60
3024	Hersey Meter Co., S. Boston, Mass.	1 5-8 meter	14.25
3025	Die Volkszeitung, St. Paul	Advertising	2.25
3026	John Bell, "	Cement	16.50
	Total		$ 7,981.66

LIST OF VOUCHERS—*Continued.*

MARCH, 1888.

No.	Name.	Claim.	Amount.
3027	John Caulfield, Secretary, St. Paul	Pay roll for February	$3,830.21
3028	Jonathan Warden, St. Louis, Missouri	Inspecting pipe	288.30
3029	James Claffey, St. Paul	Estimate No. 1, drayage	903.34
3030	C. Collins, "	Blacksmithing	60.45
3031	Henry E. Wedelstaedt, "	Stationery	8.35
3032	Vacuum Oil Company, Chicago, Ill	Half barrel Oil	12.15
3033	St. Paul Book & Stationery Co., St. Paul	Stationery	1.50
3034	J. G. Duggan & Bro., "	Blacksmithing	64.75
3035	Thomas Brennan, "	Lumber	22.64
3036	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	101.06
3037	Slater & Riley, "	Blacksmithing	2.50
3038	George J. Mitsch & Co., "	Lead, oil and turpentine	3.70
3039	A. D. Smith & Co., "	Turning derrick posts	5.25
3040	St. Paul Foundry Co., "	Manhole covers	7.56
3041	H. P. Rugg & Co., "	Iron pipe and fittings	7.46
3042	E. McNamee, "	Feed	14.62
3043	Farwell, Ozmun, Kirk & Co., "	Tools	4.67
3044	St. Paul Rubber Company, "	Thirty feet tubing	2.40
3045	Joseph Bulena, "	Blacksmithing	30.20
3046	Rogers & Ordway, "	Pipe fittings	4.99
3047	Robinson & Cary, "	Packing	1.20
3048	John Melrose, "	191 blasting timbers	38.20
3049	Holland Thompson Man'f Co., "	Brass goods	25.72
3050	Taylor-Craig Corporation, "	Carpenter work	42.10
3051	E. M. Hallowell & Co., "	Repairs	7.75
3052	John Caulfield, "	Cash advanced for hay, stamps, etc.	57.37
	Total		$5,548.44

LIST OF VOUCHERS—*Continued.*

APRIL, 1888.

No.	Name.	Claim.	Amount.
3053	John Caulfield, Secretary, St. Paul	Pay roll for March	$ 4,070.41
3054	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 1, pipe and specials	141,660.48
3055	George Reis, City Treasurer, St. Paul	Interest due April 1, 1888	25,062.50
3056	James Claffey, "	Estimate No. 2, drayage	1,113.15
3057	Brown, Treacy & Co., "	Two meter books	14.50
3058	W. E. Magraw, "	Daily Globe, Feb. 1, '88 to May 1, '88	2.55
3059	Charles Friend, "	Harness fixtures and repairs	9.40
3060	George J. Mitsch & Co., "	Supplies	5.65
3061	H. P. Rugg & Co., "	Pipe fittings, etc	100.74
3062	Slater & Riley, "	Horseshoeing	4.20
3063	Nicols & Dean, "	Chain	34.50
3064	A. D. Smith & Co., "	Turning twenty-seven mauls	3.00
3065	Farwell, Ozmun, Kirk & Co., "	Tools	312.77
3066	Price & Treacy, "	Veterinary services	2.50
3067	J. H. Schurmeier Wagon Co., "	One pipe cart, etc	85.75
3068	Joseph Bulcan, "	Blacksmithing	40.00
3069	J. G. Duggan & Bro., "	Blacksmithing	97.80
3070	A. W. Morgan, M'f'g Co., Buffalo, N. Y.	Estimate No. 1, valve and stop boxes	2,102.00
3071	Henry E. Wedelstaedt, "	Map material and stationery	7.48
3072	P. H. Kelly Mercantile Co., "	Powder, fuse and candles	91.75
3073	E. McNamee, "	Feed	18.37
3074	Robinson & Cary, "	Rope, tools, etc	158.42
3075	St. Paul Brass Works, "	New derricks and repairs	88.90
3076	Strong-Hackett, Hardware Co., "	Ten dozen pick handles	12.00
3077	Rogers & Ordway, "	Pipe fittings	9.09
3078	Lehigh Coal and Iron Co., "	Wood and coal	167.00
3079	Galvin Brass and Iron Works, Detroit, Mich	Estimate No. 1, gates	3,876.60
3080	R. D. Wood & Co., Philadelphia, Pa	Estimate No. 1, hydrants	3,212.00
3081	Northwestern Shot Co., St. Paul	Estimate No. 1 and final lead pipe	3,130.56
3082	H. C. McNair, St. Paul	Estimate No. 1 and final pig lead	4,602.99
3083	Mac Ritchie & Nichol, Chicago, Ill	Estimate No. 4 and fin'l submerg'd pipe	1,285.31
3084	Frank McGarry, St. Paul	Estimate No. 1 and final drayage	101.26
3085	John Bell, "	Cement	13.50
3086	Thomas Brennan, "	Lumber	4.85
3087	D. Ramaley & Sons, "	Printing	26.50
3088	Lehigh Coal & Iron Co., "	Wood and coal	65.00
3089	Jas. M. Reed, Newport, Ky.	Estimate No. 1, inspection	300.00
	Total		$ 191,893.87

LIST OF VOUCHERS—*Continued.*

MAY, 1888.

No.	Name.	Claim.	Amount.
3090	John Caulfield, Secretary, St. Paul	Pay roll for April	$6,552.48
3091	James Claffey, "	Estimate No. 3, drayage	426.47
3092	Shickle, Harrison & Howard Iron Co., St. Louis, Missouri	Estimate No. 2, pipe and specials	10,579.12
3093	A. W. Morgan Man'f Co., Buffalo, N. Y.	Estimate No. 2, valves and stop boxes	1,435.00
3094	Galvin Brass and Iron Works, Detroit, Michigan	Estimate No. 2, valves	1,544.75
3095	Northwestern Star Oil Co., Minneapolis	Half barrel boiler compound	15.75
3096	The Thomas Wentworth Man'f Co., Milwaukee	Estimate No. 1, brass goods	722.92
3097	Chapman Valve Man'f Co., Boston, Mass	Four dozen drip valves	208.20
3098	John Martin Lumber Co., St. Paul	Lumber	37.32
3099	D. Ramaley & Son, "	Postal cards and printing	76.25
3100	Die Volkszeitung, "	Advertising	1.80
3101	Henry E. Wedelstaedt, "	Stationery	6.67
3102	Pioneer Press Co., "	Job printing	35.50
3103	The A. D. Smith Co., "	Lumber and turning	12.75
3104	Farwell, Ozmun, Kirk & Co., "	Tools	17.83
3105	E. McNamee, "	Feed	16.54
3106	Strong-Hackett Company, "	Pick handles	12.00
3107	Donaldson, Ogden & Co., "	Lantern globes	1.40
3108	Prendergast Bros., "	Oil cans	1.50
3109	Larkin & Smith, "	Lanterns and fixtures	28.75
3110	Robert Seeger, "	Gasoline	2.70
3111	St. Paul Rubber Company, "	Six pair rubber boots	20.40
3112	Thomas Brennan, "	Lumber	13.44
3113	The Northwestern Lime Co., "	Fire clay	6.25
3114	John B. Overton, "	One horse for superintendent	210.00
3115	Price & Treacy, "	Veterinary services	15.00
3116	George Reis, City Treasurer, "	Interest on bonds	4,505.62
3117	Shickle, Harrison & Howard Iron Co., St. Louis, Missouri	Estimate No. 3, pipe	5,303.03
3118	The Northwestern Telephone Co., St. Paul	Telephone, May 1, 1888, to May 1, 1889	60.00
3119	John Bell, "	Cement	18.00
3120	Charles Friend, "	Harness and repairs	20.50
3121	H. P. Rugg & Co., "	Pipe, packing, etc.	286.35
3122	Joseph Bulena, "	Blacksmithing	22.05
3123	J. G. Duggan & Bro., "	Blacksmithing	123.60
3124	Warta & Delsing, "	Blacksmithing	9.50
3125	St. Paul Foundry Company, "	Cast plugs	116.12
3126	Taylor & Craig Company, "	Carpenter work	61.50
2127	P. H. Kelly Mercantile Co. "	Powder, fuse and oil	60.70
3128	Martin Feist, "	Meals for men at conduit	4.50
3129	John Dowlan, "	One-third cord iron wood	2.00
3130	Slater & Riley, "	Horseshoeing	9.90
3131	Lehigh Coal and Iron Company, "	Wood and coal	203.10
3132	St. Paul Brass Works, "	Block tin, brass goods and repairs	263.80
3133	Rogers & Ordway, "	Iron pipe and fittings	44.72
	Total		$33,115.78

LIST OF VOUCHERS—*Continued.*

JUNE, 1888.

No.	Name.	Claim.	Amount.
3134	John Caulfield, Secretary, St. Paul	Pay roll for May	$ 12,222.17
3135	R. D. Wood & Co., Philadelphia, Pa	Hydrants	1,720.00
3136	James Claffey, St. Paul	Estimate No. 4, drayage	90.35
3137	McArthur Bros., "	Estimate No. 1, reservoir	853.44
3138	E. McNamee, "	Feed	25.29
3139	Goodyear Rubber Co., "	One dozen 2½ inch clamps	3.50
3140	Robert Seeger, "	Gasoline	3.20
3141	Lehigh Coal and Iron Co., "	Coal	73.00
3142	Henry E. Wedelstaedt "	Stationery	9.50
3143	Brown, Treacy & Co., "	1,000 report blanks	3.75
3144	John Dowlan & Sons, "	Two cords slabs	7.50
3145	K. P. Cullen, "	Team for expert engineer	4.00
3146	The Engineering and Building Record, New York	One year's subscription to March 31, '89	4.00
3147	Pioneer Press Co., St. Paul	2,000 plumber's reports	15.50
3148	H. P. Rugg & Co., "	One water guage, pipe and fittings	263.18
3149	The A. D. Smith Co., "	Block caps, for piling and cutting same	102.25
3150	St. Paul Rubber Co., "	Rubber boots	15.60
3151	Joseph Bulena, "	Blacksmithing	22.80
3152	John Martin Lumber Co., "	Lumber	138.40
3153	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	134.89
3154	P. N. Lindquist, "	Horseshoeing	2.00
3155	Farwell, Ozmun, Kirk & Co., "	Tools	6.41
3156	Nicols & Dean, "	Two striking hammers	1.20
3157	J. T. Fanning, C. E., Minneapolis	Professional services	31.25
3158	George J. Mitsch & Co., St. Paul	Supplies	10.78
3159	Slater & Riley, "	Horseshoeing	7.85
3160	Robinson & Cary, "	Tools	14.34
3161	John Caulfield, Secretary, "	Frontage refunded	59.22
3162	John Caulfield, Secretary, "	Cash advanced to pay petty bills	81.45
3163	Adam Decker, "	Fence wire and tools	13.44
3164	Strong-Hackett Hardware Co., "	Fence wire	10.40
3165	St. Paul Brass Works, "	Block tin, brass goods and repairs	129.19
3166	J. G. Duggan & Bro., "	Blacksmithing	92.75
3167	Edward P. Allis & Co., Milwaukee	Rubber valves	12.50
3168	George Reis, City Treasurer, St. Paul	Interest due June 1, 1888	7,017.50
3169	Forrestal Bros., St. Paul	Street sprinkling, East Fifth	5.40
	Total		$ 23,208.00

LIST OF VOUCHERS—*Continued.*

JULY, 1888.

No.	Name.	Claim.	Amount.
3170	John Caulfield, Secretary.....St. Paul...	Pay roll for June	$16,442 11
3171	George Reis, City Treasurer, "	Interest due July 10	6,416.00
3172	James Claffey, "	Estimate No. 5, drayage	64.65
3173	R. D. Wood & Co., Philadelphia, Pa.....	Estimate No. 3, hydrants	3,057.00
3174	A. W. Morgan, Buffalo, N. Y	Hydrant castings	336.60
3175	The Thomas & Wentworth Manufacturing Company, Milwaukee	Estimate No. 2, brass goods	182.45
3176	National Meter Company, N. Y	Meters	333.60
3177	James M. Reed, Newport, Kentucky.....	Estimate No. 2, inspecting pipe	162.95
3178	Thomas Watkins, Johnstown, Pa	One patent jointer	5 00
3179	Shickle, Harrison & Howard Iron Co., St. Louis, Missouri	Estimate No 4, pipe	2,926.42
3180	Jonathan Warden, St. Louis, Missouri..	Inspecting pipe	152.38
3181	E. B. Chandler, Chicago	Galvanized wire	60.42
3182	Miles & Hall.....St. Paul	Electric alarm	34.50
3183	J. R. Jenkins, "	Electric alarm terminal chamber	20.00
3184	McArthur Bros., "	Estimate No. 2, reservoir	4,273.74
3185	John Dowlan & Sons., "	Coal and wood	3,770.27
3186	E. S. Norton, "	998 cubic yards clay, 10c	98.84
3187	Pioneer Press Company, "	Daily, to June 30, 1888.	4.60
3188	W. E. Magraw, "	Daily Globe, May to August, 1888.	2.55
3189	Pioneer Press Company, "	One cash book	8.50
3190	George J. Mitsch & Co., "	Supplies	3.85
3191	E. McNamee, "	Feed	27.64
3192	Robert Seeger, "	Gasoline	3.10
3193	H. E. Wedelstaedt, "	Stationery	2.30
3194	J. T. Fanning, Minneapolis, "	Professional services	29.00
3195	Boeringer & Sons, "	One patent engineer's rod	16.00
3196	Fairbanks, Morse & Co., "	Repairing scales	9.60
3197	Adam Decker & Co., "	Fence wire	6.00
3198	Prendergast Brothers, "	Water pails, etc	3.80
3199	Goodyear Rubber Company, "	One dozen hose clamps	7.00
3200	The A. D. Smith Co., "	Blocks for piling	58.50
3201	McArthur Bros., "	Labor on Delos street	6.00
3202	Price & Treacy, "	Veterinary services	20.00
3203	Sherwood, Sutherland & Co., "	Piling on right-of-way	561.60
3204	John Martin Lumber Co., "	Lumber	10.80
3205	Farwell, Ozmun, Kirk & Co., "	10 dozen shovels	97.50
3206	Donaldson, Ogden & Co., "	One dozen red lanterns	11.85
3207	P. N. Lindquist, "	Horseshoeing	7.00
3208	Strong-Hackett Hardware Co., "	Pick handles	11.40
3209	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	94.65
3210	H. P. Rugg & Co., "	Valves, pipes and fittings	182.99
3211	St. Paul Brass Works, "	Brass goods and repairs	30.51
3212	D. Ramaley & Sons, "	One thousand postals and printing	12.00
3213	Brown, Treacy & Co., "	Printing stationery	29.24
3214	Taylor-Craig Corporation "	Jackscrews, etc	156.20
3215	J. G. Duggan & Bro., "	Blacksmithing	79.70
3216	Joseph Bulena, "	Blacksmithing	27.15
3217	Feirer & Esch, "	Blacksmithing	19.50
3218	Thomas Brennan "	Lumber	2.98
3219	Nicols & Dean, "	Stone sledge and chain	4.78
3220	Rogers & Ordway, "	Galvanized pipe and fittings	124.40
3221	Z. Geroux, Little Canada, "	Excavating over conduit	194.25
3222	Hodgman Bros., "	Estimate No. 1, and final, 80,029 lbs pig lead at $3.75	3,001.09
3223	John Rogers, Jr., & Bro., "	Insurance on office	20.00
3224	Prince & Shaudrew, "	Insurance on office	30.00
3225	Allen & Co., "	Horse hire	23.00
3226	John Caulfield, Secretary, "	Money advanced for freight, hay, postage, etc	75.99
3227	John Caulfield, Secretary, "	Frontage tax refunded	73.32
2228	John E. O'Brien, "	Re-laying sidewalk, Jackson and 8th st	108.35
	Total		$43,533.82

LIST OF VOUCHERS—*Continued.*

AUGUST, 1888.

No.	Name.	Claim.	Amount.
3229	John Caulfield, Secretary, St. Paul	Pay roll for July	$ 15,747.90
3230	Chapman Valve M'f'g Co., Boston, Mass.	Two dozen drip valves	130.80
3231	Galvin Brass and Iron Works, Detroit, Michigan	Three 12-inch gates	105.00
3232	Hersey Meter Co., Boston, Mass	One 1-inch meter and con's	27.00
3233	Vacuum Oil Co., Chicago, Ill	Oil for pumps	26.10
3234	George Reis, City Treasurer, St. Paul	Interest on bonds	3,759.35
3235	McArthur Bros., "	Estimate No. 3, reservoir	8,101.72
3236	McArthur Bros., "	Refilling clay pits	173.65
3237	Wm. Lindeke, Trustee, "	Estimate No. 1, clay for reservoir	750.00
3238	Adam Decker & Co., "	Nails and hardware	4.31
3239	Pioneer Press Co., "	Seven assessment books	11.50
3240	Henry E. Wedelstaedt, "	Stationery	6.35
3241	Bazille & Partridge, "	Set one transom light	2.15
3242	James Claffey "	Estimate No. 6, drayage	71.79
3243	Brown, Treacy & Co., "	Stationery	26.79
3244	J. G. Duggan & Bro., "	Blacksmithing	93.65
3245	Joseph Bulena, "	Blacksmithing	68.10
3246	H. P. Rugg & Co., "	Valves and pipe fittings	220.96
3247	E. McNamee, "	Feed	17.79
3248	Nicols & Dean, "	Crowbar and sledge	8.12
3249	Price & Treacy, "	Professional services	4.95
3250	Prendergast Bros., "	Cash box and oil cans	9.80
3251	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	130.99
3252	St. Paul Foundry Co., "	Plugs	62.98
3253	Strong-Hackett Hardware Co., "	Pick handles	18.00
3254	John Melrose, "	100 blasting timbers	20.00
3255	Farwell, Ozmun, Kirk & Co., "	Shovels, etc	58.77
3256	Lehigh Coal and Iron Co., "	Wood	8.50
3257	Sherwood, Sutherland & Co., "	Piling at State street	337.75
3258	Lockwood, Allord & Co., Union Park	Two cord of slabs	8.00
3259	Robinson & Cary, St. Paul	Tools, etc	112.26
3260	St. Paul Brass Works, "	Repairs	44.64
3261	John Bell, "	Cement	25.50
3262	John Martin Lumber Co., "	Lumber	35.15
3263	Robert Seeger, "	Gasoline	4.05
3264	Jas. McCroden, Merriam Park	Blacksmithing	5.65
3265	Rogers & Ordway, St. Paul	Pipe and fittings	4.20
3266	R. D. Wood & Co., Philadelphia, Pa	Fire hydrants and fixtures	1,898.50
3267	Hodgman Bros, St. Paul	Estimate No. 1 and final lead pipe	2,068.74
3268	P. N. Lindquist, "	Horseshoeing	5.75
3269	Jno. Dowlan & Son, "	Wood	8.00
3270	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Pipe and special castings	5,230.75
	Total		$ 39,455.96

LIST OF VOUCHERS—*Continued.*

SEPTEMBER, 1888.

No.	Name.	Claim.	Amount.
3271	John Caulfield, Secretary, St. Paul	Pay roll for August, 1888	$16,367.98
3272	" " " "	Cash advanced to pay bills per voucher	38.39
3273	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 6, pipe	4,002.17
3274	A. W. Morgan, Buffalo, N. Y	Est. No. 4, valve and stop boxes	415.00
3275	R. D. Wood & Co., Philadelphia, Pa	Est. No. 5, hydrants	1,336.00
3276	Jas. M. Reed, Newport, Ky	Est. No. 3, pipe inspection	28.90
3277	National Meter Co., New York	Meters	152.00
3278	Galvin Brass and Iron Works, Detroit, Mich	Est. No. 4, valves	360.30
3279	The Thomas & Wentworth Manufacturing Co., Milwaukee, Wis	Est. No. 3, brass goods	367.71
3280	Chapman Valve Manufacturing Co., Boston, Mass	Valves	272.50
3281	George E. Hess, treasurer, St. Paul	Est. No. 2, clay for reservoir	1,000.00
3282	James Claffey, "	Est. No. 7, drayage	105.39
3283	Wm. Graham, "	Repairing retaining wall West 7th	16 00
3284	Die Volkszeitung, "	Advertising	1.80
3285	The Dispatch Printing Co., "	"	1.00
3286	K. P. Cullen, "	Livery	15.50
3287	C. S Radcliffe, "	Team	3.00
3288	H. P. Rugg & Co. "	Gasket packing pipe, etc	182.32
3289	Strong-Hackett Hardware Co "	Pick Handles	6.00
3290	Larkin & Smith, "	Lantern globes, etc	22.15
3291	Chas. Friend, "	Harness fittings and repairs	19.50
3292	Farwell, Ozmun, Kirk & Co "	Shovels and tools	50.52
3293	Price & Treacy, "	Prof. veterinary services	19.00
3294	E. McNamee, "	Feed	22.52
3295	John Martin Lumber Co., "	Lumber	24.87
3296	Lockwood, Allord & Co., Union Park	Pine slabs	8.00
3297	John Bell, St. Paul	Cement	9.00
3298	John Dowlan & Sons, "	Fuel	46.50
3299	P. H. Kelly Mercantile Co. "	Powder, fuse and oil	145.89
3300	J. G. Duggan Bros., "	Tools	35.60
3301	C. Collins, "	Blacksmithing	38.95
3302	Joseph Bulena, "	"	12 20
3303	Robinson & Cary, "	Oil and tools	19.91
3304	St. Paul Brass & Iron Works "	Block tin, brass goods and repairs	326.50
3305	Jas. McCroden, "	Blacksmithing	5.80
3306	Brown, Treacy & Co., "	Stationery	13.45
3307	Thomas Grace, "	Gate chamber for reservoir	218.50
3308	McArthur Bros, "	Stripping clay bed reservoir	158.11
3309	McArthur Bros., "	Est. No. 4, reservoir	16,509.40
3310	George Reis, city treasurer, "	Interest due Sept. 1, 1888	6,758.45
3311	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 7, pipe and specials	2,014.90
3312	Northwestern Shot Co., St. Paul	Est. No. 1 and final, pig lead	1,912.58
3313	Robert Seeger, "	Gasoline	2.55
3314	P. N. Lindquist, "	Horseshoeing	7.50
	Total		$53,074.32

LIST OF VOUCHERS—*Continued.*

OCTOBER, 1888.

No.	Name.	Claim.	Amount.
3315	John Caulfield, Secretary, St. Paul	Pay roll for September, 1888	$ 14,046.63
3316	James McCroden, Merriam Park	Blacksmithing for September	7.95
3317	The Thomas & Wentworth M'f'g Co., Milwaukee	Brass goods	336.12
3318	Jonathan Warden, St. Louis	Inspecting pipe	39.00
3319	Northwestern Star Oil Co., Minneapolis	Boiler compound	10.50
3320	McArthur Bros. St. Paul	Estimate No. 5, reservoir	28,453.04
3321	George Reis, City Treasurer, "	Interest due October 1, 1888	25,062.50
3322	James Claffey, "	Estimate No. 8, drayage	74.42
3323	The Chicago, St. Paul & Kansas City R'y	Labor at State street crossing	23.25
3324	D. Ramaley & Sons St. Paul	Job printing	4.25
3325	W. E. Magraw, "	Daily Globe, October 1, '88, to Nov. 1, '88	2.55
3326	City of St. Paul, City Engineer, "	Repairing gutter on Walnut and West Seventh streets	8.34
3327	Farwell, Ozmun, Kirk & Co., "	Tools	3.25
3328	Taylor & Craig, "	Carpenter work	14.55
3329	Thomas Brennan, "	Lumber	7.00
3330	Prendergast Bros., "	Cleaning furnace and repairs	14.10
3331	Strong-Hackett Hardware Co., "	Nails and tools	4.50
3332	Chas. Friend & Son, "	Harness fixtures and repairs	3.75
3333	John Dowlan & Sons, "	Coal and wood	67.42
3334	H. P. Rugg & Co., "	Galvanized iron pipe, etc	80.78
3335	St. Paul Brass Works, "	Block tin and repairs	57.30
3336	Donaldson, Ogden & Co., "	Lantern fixtures	2.55
3337	Goodyear Rubber Co., "	One-half dozen 2½ inch clamps	1.75
3338	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	84.65
3339	Ed McNamee, "	Feed	19.45
3340	Lockwood, Allord & Co., Union Park	Pine slabs	8.00
3341	P. N. Lindquist St. Paul	Horseshoeing	6.50
3342	J. G. Duggan & Bro., "	Blacksmithing	70.80
3343	C. Collins, "	Blacksmithing	20.60
3344	Joseph Bulena, "	Blacksmithing	15.55
3345	Brown, Treacy & Co., "	Printing and stationery	21.15
3346	Rogers & Ordway, "	Pipe and fittings	7.36
3347	K. P. Cullen, "	Horse and buggy reservoir	6.00
3348	St. Paul Foundry Co., "	Manhole and other castings	42.55
3349	Robert Seeger, "	Gasoline	3.00
3350	McArthur Bros., "	Uncovering clay pit	277.52
3351	N. M. Thygeson, Attorney for A. G. Asplund St. Paul	Damages	15.00
3352	R. D. Wood & Co., Philadelphia, Pa.	Hydrants	1,351.00
3353	A. W. Morgan, Buffalo, N. Y.	Estimate No. 5, valve boxes	137.50
3354	Oscar A. Peterson, Fondulac, Minn.	Telephone poles	23.25
3355	Robinson & Cary St. Paul	Waste plumbago, etc	7.00
3356	W. A. Van Slyke & Co., "	Fuse	10.80
3357	P. F. Fitzgibbon, "	Painting pump house	174.00
3358	The A. D. Smith Co., "	Thirty-eight pile blocks and sawing	15.20
3359	P. Boeringer & Sons, "	One engineer's reel and repairs	3.50
3360	City of St. Paul, "	Relaying pavement	2,174.22
3361	J. S. Burris, "	Sewer brick	85.00
3362	John Caulfield, Secretary, "	Cash advanced to pay freight, etc	51.03
	Total		$ 72,956.13

LIST OF VOUCHERS—*Concluded.*

NOVEMBER, 1888.

No.	Name.	Claim.	Amount.
3363	John Caulfield, Secretary, St. Paul	Pay roll for October	$ 13,069.27
3364	Eric Nystrom, "	Labor on gate outlet of Pleasant Lake	36.95
3365	J. I. Beaumont, "	Making frontage tax list	660.00
3366	George Reis, City Treasurer, "	Interest due Nov. 2, 1888	4,505.62
3367	City of St. Paul, "	Relaying pavement	518.43
3368	Prendergast Bros., "	Smoke stack for office chimney	16.00
3369	John Dowlan & Son, "	Fuel	42.25
3370	K. P. Cullen, "	Livery, to reservoir, etc	9.00
3371	John Martin Lumber Co., "	Lumber	56.75
3372	Taylor & Craig Co., "	Dam for Pleasant Lake	23.70
3373	James Claffey, "	Estimate No. 9 and final drayage	330.10
3374	Brown, Treacy & Co., "	Job printing and stationery	15.75
3375	E. McNamee, "	Feed	23.85
3376	St. Paul Brass Works, "	Block tin and repairs	92.96
3377	Thomas Brennan, "	Lumber	8.90
3378	Strong-Hackett Hardware Co., "	Pick handles and nails	8.25
3379	P. N. Lindquist, "	Horseshoeing	8.50
3380	Farwell, Ozmun, Kirk & Co., "	Tools	11.05
3381	St. Paul Rubber Co., "	Rubber Boots, etc	45.51
3382	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	130.26
3383	McArthur Bros., "	Surfacing trench, Plum street	11.00
3384	St. Paul Foundry Co., "	One crib for reservoir	284.00
3385	Rogers & Ordway, "	Pipe fittings, valves, etc	28.95
3386	J. G. Duggan & Bro., "	Blacksmithing	30.20
3387	Joseph Bulena, "	Blacksmithing	14.85
3388	H. P. Rugg & Co., "	Pipe fittings, etc	50.19
3389	George J. Mitsch & Co., "	Supplies	23.66
3390	McArthur Bros., "	Estimate No. 6, reservoir	23,968.13
3391	H. P. Rugg & Co., "	Estimate No. 1, lead pipe	701.00
3392	Hersey Meter Co., South Boston	Meters	54.00
3393	Shickle, Harrison & Howard Iron Co., St. Louis, Mo	Estimate No. 8 and final pipe, etc	1,311.04
3394	Martin Feist, St. Paul	Lunch for men cleaning conduit	4.70
3395	John Bell, "	Cement	9.00
3396	Robert Seeger, "	Gasoline	3.00
3397	J. R. McMurran "	Rent of lots for storing	10.00
3398	Stewart & Co., "	Levelling clay bed	820.05
3399	John Caulfield, Secretary, "	Advances for hay, freight, stamps, etc.	132.02
3400	F. W. Ingersoll, "	Pictures of reservoir construction and frames	8.50
3401	George E. Hess, Secretary, "	Clay for construction of reservoir	1,935.00
	Total		$48,952.39
	Grand total		545,477.61

METERS.

Kind.	Sizes.								Total.
	½	⅝	¾	1	1½	2	3	4	
Worthington	4	6	18	13	9	2	2	.....	54
Union (rotary)	.....	17	17	11	8	.....	1	.....	54
Union (piston)	.....	8	5	6	2	.....	.....	.....	21
Crown	.....	1	2	10	18	1	.....	.....	32
Empire	27	10	41	30	.....	8	.....	1	117
Hersey	.....	1	.....	2	.....	.....	.....	.....	3
Self-register, on elevator and church organ	.....	.....	.....	.....	.....	1	.....	1	2
Thompson	.....	1	.....	.....	.....	.....	.....	.....	1
Total	31	44	83	72	37	12	3	2	284

SHUTTING OFF AND TURNING ON WATER, FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888.

	High service.	Low service.	Total.
Shut off for repairs	105	242	347
" " non-payment	82	183	265
" " vacant premises	124	162	286
" " violation of rules	.....	.....	.....
Total	311	587	898
Turned on, old service	249	486	735
" new service	760	368	1128
" for builders	.....	72	72
Total	1009	926	1935

Total services shut off and turned on for year ending December 1, 1888 2,833
" " " " " " " 1887 2,541
" " " " " " " 1886 2,384
" " " " " " " 1885 2,311
" " " " " " " 1884 1,014

SUPERINTENDENT'S REPORT.

To the Honorable President and Members of the Board of Water Commissioners:

GENTLEMEN: I have the honor of submitting to your honorable body my seventh annual report, and in doing so I have endeavored to show you the present condition of the works as well as my recommendation for the future.

The change of grade on Dale street, which I mentioned in my last report, caused me to have to lower the main supply for high service some twenty feet at the greatest depth, diminishing to zero at the ends. From the boulder formation of the soil this was a work of considerable magnitude, yet it was accomplished successfully and the consumers were not deprived of water any time while the work was in progress. The settling of Seventh street fill over Phalen creek caused the irregular settling of main for two hundred feet. The main was raised and put on grade before the pavement was relaid. From present appearance I believe the work will remain permanent.

The low service main where it crosses Maryland avenue for some thousand feet in length was originally laid on forty foot piling. And in grading said street the grading developed settling some four feet in places. It was necessary to jack up the pipe and to drive additional piles fifty-three feet in length in different places in order to put the main supply to its proper grade. It was difficult to get bearing for the jackscrews and as each pipe was solidly jointed it made the work slow and tedious. Two lead joints partly blew out and made it a necessity to shut off the Vadnais supply for a short period, leaving only a partial supply from the old Lake Phalen system. The wet and swampy nature of the soil in this locality made the work more difficult to handle, but it was got through successfully and the main is now reblocked on old as well as on new piling. Before proceeding with that work I consulted with Professor Fanning, one of the ablest engineers on hydraulics in this country, and he fully concurred in my plans. I gave this work all the attention which I could possibly spare, having at the same time some four hundred men working in different parts of the city which required my personal supervision.

The relaying of Jackson street, from Fourth to Ninth, with a 12-inch main, mentioned in my last report, was completed this season, as also Third street,

from Broadway to Jackson. The pipe on this street will require to be extended to the Seven Corners. The 20-inch main mentioned in my last report has been extended on West Seventh, from Seven corners to Leech, giving a full supply in the southwestern portion of the city. The old 16-inch main on East Seventh was relaid and put to its proper depth from Minnesota to Jackson. It will require its continuance to Locust before the construction of the cable line, as it can be done with far greater economy before the construction than afterwards. The State street main across the Minnesota & Northwestern railway was connected during the month of October. As also the completion of the extension to Merriam and Union Parks.

Our fire hydrants are now all in good repair and I anticipate very little trouble from them during the coming winter. There were 266 hydrants set this season, making a total of 1134 now in service. We have 162 street sprinkling hydrants, 25 of them being set this season. All are arranged advantageously for the use of sprinkling contractors.

The following is a statement of the extension made during the season:

LOW SERVICE.

	Feet.
4-inch pipe	1,109
6-inch pipe	23,535
12-inch pipe	8,458
16-inch pipe	2,626
20-inch pipe	1,482

Making a total of 7 miles and 331 feet.

HIGH SERVICE.

	Feet.
4-inch pipe	6,717
6-inch pipe	66,317
12-inch pipe	19,910
16-inch pipe	2,640
20-inch pipe	14,585
24-inch pipe	3,013
36-inch pipe	1,560

Making a total of 21 miles and 3,061 feet.

Total mileage of pipe laid in St. Paul during the season on high and low service, 28 miles and 3,392 feet.

Grand total of city mains, 131 miles and 2,876 feet.

The connections made with dwellings are rapidly increasing. There have been 1,218 new ones made this year, which is nearly 200 more than was ever put in during a season in this city. We have now somewhere about 7,300 consumers.

The increased mileage of pipe demanded by our city and its rapidly increasing population makes it a necessity to lay a 30-inch supply main for high service. This main, with its necessary connections, will cost in the aggregate of

$200,000. To do the work with economy and save the cost of piping the grading of the right of way must be done the coming spring and summer. It will take to the year 1890 before this work can be complete, and at that time there will be 100 miles of pipe on high service. This is as much as the present 24-inch main is capable of supplying, taking into account that the consumers will increase in the same ratio for the coming two years as in the past two.

This main will be laid from the pumping station down the low service right of way to Maryland street, thence east to Earl street, connecting on Earl and Arcade with the present high service supply in East St. Paul. It will also connect on Courtland and Rice streets in the center of north of the present high service supply. It will be neither safe nor prudent to any longer delay this additional work. Then in case of alterations or breakage on the present main the consumers will have an ample supply as also fire protection. This main will require for its working increased pumping facilities.

I will again call your attention to the urgent necessity of a low service reservoir. The conduit needs some repairing which cannot be successfully done with a supply of water running through it. This work will take two years to complete.

The last season has been the busiest on the records of the St. Paul Water Works in regard to mains and service connections. It has been free from casualties and litigation.

In conclusion I return my thanks to the president and members of the board and Mr. John Caulfield, secretary, for their uniform courtesy and kindness to me. I have the honor to remain, gentlemen,

Respectfully yours,

J. B. OVERTON,

Superintendent St. Paul Water Works.

ESTIMATE OF AMOUNT AND COST OF PIPE RECOMMENDED TO BE LAID TO DECEMBER 1ST., 1889, ON HIGH AND LOW SERVICE.

31 and 540 | 5280	miles pipe 5171 tons at $28 00	$ 144,788.00
	148 tons special castings at $55.00	8,140.00
	Gates and gate boxes	7,665.00
	Fire hydrants	17,050.00
Lead, 115 tons at $90.00		10,350.00
	Hemp packing, 3½ tons at $125.00	437.50
	Excavation and laying	65,000.00
	Extra for rock excavation	10,000.00
	Drayage of pipe and miscellaneous 6000 tons at $55.00	3,300.00
	Privilege pipe	10,000.00
Total		$ 276,730.50

PIPE RECOMMENDED TO BE LAID ON LOW SERVICE DURING THE YEAR 1889.

Street.	From Street to Street.	Number of Feet and Size of Pipe.				
		4 in.	6 in.	12 in.	16 in.	20 in.
Third	Jackson to Seven Corners			4,150		
Seventh	Locust to Jackson				2,400	
Locust	Crossing of Seventh					150
Eleventh	Robert to Cedar		750			
Columbia	Glencoe to Pennsylvania		750			
Pennsylvania	Columbia to L'Orient		350			
Cayuga	Mississippi to Courtland		1,700			
Indiana	Dakota to Ethel			2,000		
Stryker	Prospect Terrace to George		2,200			
George	Stryker to State			2,600		
State	Concord to Prescott				850	
Lisbon	Douglas to Pleasant		950			
Pleasant	Lisbon to Prairie		550			
Tuscarora	Seventh to Milton		1,500			
Armstrong	Seventh to Drake		1,000			
Banfil	Seventh to Richmond	1,350				
Minnehaha	Bradley to DeSoto		700			
Bancroft	Concord to Congress		950			
Toronto	Seventh to Jefferson		775			
Eagle	Washington to Third		1,200			
Totals		1,350	13,375	8,750	3,250	150

Total—26,875 feet, or 5 miles and 4,750 feet.

PIPE RECOMMENDED TO BE LAID ON HIGH SERVICE DURING THE YEAR 1889.

Street.	From Street to Street.	Number of Feet and Size of Pipe.				
		4 in.	6 in.	12 in.	16 in.	20 in.
Whitall	Clark to Bradley		1,000			
Clark	Whitall to Case		1,300			
Burr	Jenks to Cook		700			
Cook	Mendota to Edgerton		3,200			
Arcade	Magnolia to Jessamine			350		
Forest	Jessamine to Jerusalem		300			
Jessamine	Forest to Weide		1,750			
Payne	Cook to Rose		1,300			
Magnolia	Payne to Edgerton		700			
Edgerton	Cook to York			1,650		
Fremont	Mendota to Arcade		550			
Third	Maple to Fremont		450			
Fremont	Forest to Cypress		700			
Forest	Conway to Francis		1,350			
Seventh	Duluth to Ocean				1,000	
Minnehaha	Arcade to Duluth		4,000			
Arcade	Seventh to Francis		900			
Hope	Sixth to Seventh		500			
Maria	Eighth to North		300			
North	Seventh to Preble		1,000			
Lawrence	North to Maury		400			
Sims	Arcade to Forest		1,300			
Sims	Payne to Edgerton		650			
Maple	Hudson to Hastings			800		
Hastings	Maple to Mound			300		
Victoria	St. Clair to University				7,920	
Thomas	Como to Western		2,400			
Virginia	Thomas to Lafond	350				
Farrington	Thomas to Lafond		350			
Elfelt	Thomas to Lafond	350				
Gaultier	Thomas to Lafond		350			
Charles	St. Albans to Avon		1,250			
Ellen	Dale to St. Albans		650			
Aurora	Kent to St. Albans		1,300			
Fuller	Kent to Dale		700			
Rondo	Kent to Victoria		3,300			
Aurora	Victoria to Milton		625			
Fuller	Victoria to Milton		625			
Martin	Victoria to Milton		625			
St. Anthony	Victoria to Milton		625			
Selby	Victoria to Milton		650			
Holly	Avon to Victoria		700			
Fairmount	Grotto to Victoria		1,350			
Osceola	Pleasant to Victoria		2,400			
Snelling	University to R. R.				4,800	
Wesley	Snelling to Fry		600			
Hewitt	Aldine to 200 feet east of Sheldon		3,600			
Taylor	Charlotte to 100 feet east of Pascal		2,200			
Walker	Hewitt to R. R.	800				
Pascal	Taylor to Minnehaha		1,800			
Minnehaha	Sheldon to Snelling			2,200		
Wesley	Simpson to Pascal	400				
Simpson	Capital to Wesley		450			
Capitol	Simpson to Snelling		900			
St. Albans	Aglehart to Rondo	700				
Front	Dale to Lexington			5,280		
Lexington	Front to Van Slyke				2,640	
To Workhouse			600			
Van Slyke	Lexington to Chatsworth		1,500			
Cross	Argyle to Lexington		1,000			
Churchill	McKenty to Van Slyke		1,250			

PIPE RECOMMENDED TO BE LAID ON HIGH SERVICE DURING THE YEAR 1889—Concluded.

Street.	From Street to Street.	Number of Feet and Size of Pipe.				
		4 in.	6 in.	12 in.	16 in.	20 in.
Oxford	McKenty to Cross		500			
Argyle	McKenty to Van Slyke		800			
Chatsworth	McKenty to Boulevard		1,000			
Boulevard	Northwest of Chatsworth		250			
	Macalester Park					
Snelling	Lincoln to University				6,230	
Summit ave. S. side	Snelling to Oxford ave	900				
Hamilton	Cambridge to Snelling		1,000			
Macalester	Rutgers to Hamilton		900			
Rutgers	Princeton to Macalester		750			
Baldwin	Princeton to Cambridge		600			
Cambridge	Baldwin to Hamilton		1,700			
Princeton	Baldwin to Oxford		400			
Oxford ave	Princeton to Summit ave		1,400			
	St Anthony Park.					
University ave	Prior to Raymond					4,550
Raymond	University to Vane Place				1,800	
Bayless	Vane Place to Langford Park				2,800	
Langford Place E.	Bayless to Gordon				1,200	
Gordon	Langford to Scudder				350	
Langford ave.	Scudder to county road				750	
County road	Langford to Dooley				200	
Pym ave	Eustis to Bayless			700		
Wheeler	Bayless to Beard			950		
Langford Place W.	Bayless to Gordon			600		
Gordon	Langford Place W. to Langford av			650		
Scudder	Gordon to Langford				400	
Vane Place	Eustis to Raymond		1,000			
Ellis	Raymond to Long		600			
Long avenue	Raymond to Bradford		400			
Hampden	Raymond to Henry		1,700			
Hampden	Bayless to Raymond	900				
Cromwell	Pym to Manvel		950			
Manvel	Raymond to Robbins		1,300			
Raymond	Long to Raymond Place		1,100			
Raymond Place	Robbins to Raymond avenue	450				
Beard	Wheeler to R R		450			
Langford Park	(Around same)		1,600			
Raymond avenue	Wheeler to Langford ave		1,850			
Blake avenue	Langford Place east to Scudder		200			
Scudder	Blake to Gordon		950			
Gordon	Scudder to Raymond		400			
Priscilla	Raymond to R R		800			
Pratt	Raymond to Rich		800			
Nourse	Gordon to R R		400			
Knapp	Langford to R R		900			
Dooley	County road to Raymond		1,250			
Total high service		4,850	80,100	13,480	30,090	4,550

4 inch pipe	4850
6 inch pipe	80100
12 inch pipe	13480
16 inch pipe	30090
20 inch pipe	4550
Total on high service	133070 feet, or 25 miles and 1070 feet.
Total on low service	26875 feet, or 5 miles and 4750 feet.
Grand total	159945 feet, or 31 miles and 540 feet.

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888, ON LOW SERVICE.

Date.		Street.	From street to street.	No. of feet and size of pipe.				
				4	6	12	16	20
March	29	Sixth street	St. Peter to Seventh		517			
April	2	Lee Avenue	Seventh to Drake		1410			
"	12	Goodrich	At Western			48		
"	13	Dousman	Yankee to VonMinden		300			
"	14	Von Minden	Dousman to Western		897			
"	20	Bradley	Beaumont to Minnehaha	498				
"	20	Minnehaha	Bradley to Bedford		193			
May	5	Fillmore	State to Dakota		2778			
"	7	L'Orient	Nash to Pennsylvania		1490			
"	7	Mt. Airy	At L'Orient		40			
"	7	Pennsylvania	At L'Orient		40			
"	8	Woodward	Burr to Bradley	319				
"	9	Dakota	Isabel to Goff		500			
"	10	Congress	Concord to Dakota		698			
"	11	Ramsey	Seventh to Leech				307	
"	12	Leech	At Ramsey		31			
"	23	Colorado	R. R. to Parnell		1240			
"	23	Livingston	Delos to Wood		580			
"	23	S. Robert	Wood to Concord		1448			
"	28	Concord	Bancroft to Andrew			1182		
"	31	W. Seventh	Ramsey to Leech				438	
"	31	Winifred	Concord to State		975			
June	6	Isabel	Winslow to Charlton			1732		
"	9	Winifred	Bancroft to Andrew		1039			
"	14	Delos	Greenwood to Dakota		1617			
"	16	Western	Prairie to Goodhue		1150			
"	17	Jackson	Fourth to Ninth			1708		
"	23	Robert	Fairfield to C., St. P. & K. C. R. R		1660			
"	23	Chicago	At crossing of Robert		37			
July	6	W. Seventh	Eagle to Ramsey					1482
"	7	Randolph	View to Milton			1522		
"	9	Eagle	At W. Seventh		3			
August	6	Colborne	Seventh to Superior		1182			
"	6	St. Clair	At Colborne			64		
"	21	W. Seventh	Lee to Tuscarora				467	
"	21	Tuscarora	East of Seventh		37			
"	24	Randolph	East of Seventh		34			
Sept.	17	Daly	James to Jefferson		986			
"	17	Daly	James, west of Seventh		198			
"	20	Third	Broadway to John			779		
"	26	Third	Broadway to Jackson			1423		
"	28	John	Third to Prince		292			
"	28	Prince	Crossing John		48			
October	4	Smith	Seventh to Douglas		478			
"	5	State	Morrison to Isabel				1414	
"	9	Garfield	Ramsey to Lisbon		371			
"	9	Ramsey	At Pleasant		10			
"	27	Chicago	Dakota to Custer		704			
"	27	Emma	Western to Short Line R. R	373				
"	29	Roble	Bancroft to Brown		522			
		Total		1190	23535	8458	2626	1482

4 inch pipe	1190
6 inch pipe	23535
12 inch pipe	8458
16 inch pipe	2626
20 inch pipe	1482
	37291 feet or 7 miles and 331 feet.

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888, ON HIGH SERVICE.

Date.		Street.	From street to street.	No. of feet and size of pipe.							
				4	6	12	16	20	24	30	36
April	20	Central Drive W	Summit to Central	460							
"	20	Central Drive E.	At Summit Avenue	17							
"	20	Summit Drive	East to west of Park	260							
"	21	Brewster	Viola to Como		324						
"	23	Ellen	Kent to Dale		707						
"	23	Mt. Airy	L'Orient to Broadway		638						
"	12	Reaney	Greenbrier to Welde		885						
"	18	Euclid	Forest to Earl		1258						
"	18	Dale	To Reservoir	284		506		6	21		1560
"	23	Carroll	Dale to Victoria		2670						
"	31	Iglehart	Dale to Victoria		2671						
May	4	Ravine	Maria to Maple	1079							
"	11	Ross	Earl to Atlantic		1954						
"	15	Beech	Earl to Duluth		1306						
"	15	Earl	At Beech			26					
"	15	Summit	St. Albans to Mil. S. line			6030					
"	20	Beech	Mendota to Forrest		643						
"	22	Selby	St. Albans to Grotto		587						
"	23	Park	Sherburne to Viola		389						
"	27	Marion	University to Lafond		1639						
"	29	VanBuren	Western to Arundel		627						
"	29	Virginia	At Rondo	38							
July	10	Lafond	Western to Grotto		3916						
"	17	Edmund	Western to Grotto		3910						
"	30	St. Albans	Marshall to Iglehart	329							
"	31	Portland	Crossing St. Albans		41						
"	31	St. Albans	North of Portland	47							
"	31	Dale	Marshall to University				2640				
"	31	University	At Dale			50					
"	31	Aurora	West of Dale		21						
"	31	Fuller	West of Dale		21						
"	31	St. Anthony	Crossing Dale		42						
"	31	Rondo	Crossing Dale		49						
Aug.	1	Martin	Kent to Dale		706						
"	1	Payne	Omaha R. R. to Cook		2715						
"	1	Cook	Crossing Payne		75						
"	8	Case	Forest to McMenemy			6504					
"	13	Burr	Omaha R. R. to Jenks		1936						
"	14	Minnehaha	West of Dale			22					
"	14	VanBuren	West of Dale		22						
"	14	Blair	Crossing Dale		42						
"	14	Thomas	Crossing Dale		42						
"	14	Charles	Mackubin to St. Albans		1916						
"	14	Dale	University to Capital	2900					2992		
"	21	Sims	Arcade to Payne		1962						
"	28	York	Forest to Edgerton		3879						
"	30	Forest	Wells to Case		968						
Sept.	3	Beech	Earl to Forest		1334						
"	12	Park	Wabasha to University		455						
"	20	Laurel	Miller to Fisk		512						
"	21	Summit Ct. ally	East of Lawton		362						
Aug.	1	Goodrich	Dale to 180 ft. w. of Victoria		2841						
"	1	Bates	Plum to Hastings			60					
"	1	Hastings	Bates to Mound			406					
"	6	Mound	Hastings to Burns			1298					
"	10	Dale	Goodrich to Fairmount			300					
"	10	Fairmount	Dale to Grotto		956	518					
"	10	St. Albans	South of Fairmount		300						
"	10	Kenwood Park	St. Albans around said p'rk		767						
"	11	Pine	Williams to Pennsylvania		491						
"	11	Pennsylvania	Pine to Olive		342						
"	11	Olive	At Pennsylvania		47						
"	15	University	Dale to Prior					14579			
"	16	Bremer	Waltham to University		1211						
"	16	Lynnhurst, W	University to Feronia		1084						
"	16	Lynnhurst, E.	Lynnhurst W. to Feronia		766						
"	16	Feronia	Fairview to Prior		1360						

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID FROM DECEMBER 1, 1887, TO DECEMBER 1, 1888, ON HIGH SERVICE—Concluded.

Date.		Street	From street to street	No. of feet and size of pipe.							
				4	6	12	16	20	24	30	36
"	16	Oakley	Lynnhurst W. to Prior		451						
"	16	Waltham	Bremer to Prior	959							
"	16	Iglehart	Laura to Cleveland		2201						
"	16	Carroll	Cleveland to 13 ft. E of Fairview		2645						
"	16	Rondo	Terrace Park Ave to 110 ft. E of Laura		1366						
"	16	St Anthony	Bremer to Cleveland		2358						
"	16	Wilder	Iglehart to St Anthony		1388						
"	16	Astoria	St Anthony to Milwaukee Avenue		275						
"	16	Milwaukee Ave	Mercum Place to Astoria		570						
"	18	Fauquier	Earl to Frank		640						
"	22	Plum	Hoffman to Maria		530						
"	22	Fremont	Mendota to Forest		645						
"	22	Prior	Marshall to University			3389					
"	29	Portland	St. Albans to Grotto		663						
"	31	Rondo	Mackubin to Kent		618						
Nov	10	Short	Hoffman to Maria		572						
"	15	Ravine	344 ft. west of Maria	344							
		Total		6717	66317	19100	2640	14585	3013		1560

4 inch pipe	6717
6 inch pipe	66317
12 inch pipe	19100
16 inch pipe	2640
20 inch pipe	14585
24 inch pipe	3013
36 inch pipe	2560

113941 feet or 21 miles and 3061 feet

Total mileage laid this year on high and low service, 28 miles and 3392 feet

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM, OR LOW SERVICE, TO DECEMBER 1, 1888.

Street or avenue.	From Street to Street.	Number of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Acker	Mississippi to Courtland		1644						
Alabama	Crossing State		55						
Armstrong	East of Seventh		35						
Audubon	East of Seventh		38						
Banfil	Seventh to Smith avenue	887							
Bay	South of Seventh		35						
Beaumont	Preble to DeSoto		1546						
Becker Place	Lafayette to DeSoto		481						
Bedford	North to Minnehaha		1327						
Bradley	Seventh to Minnehaha	498	1298						
Broadway	Mississip'i river to University	498	1735		1938		1741		
Bruno	East of Lafayette		47						
Buffalo	Acker to Genessee		631						
Burr	Partridge to Fauquier		2473						
Canada	Ninth to University		2055						
Cedar	Third to Summit		289	2573		614			
Chestnut	Seventh to Washington		1235						
Colborne	Jefferson to Superior		1762						
College	Cedar to Smith avenue		1670						
Collins	Lafayette to Bedford		1016						
Crossing Miss R	Broadway to State				1089				
Concord	Isabel to Andrew			4294					
Congress	Dakota to Bancroft		3478						
Chicago	Dakota to South Robert		741						
Colorado	R. R. to Parnell		1240						
Dakota	Bridge to Goff		3447						
Decatur	Bedford to Beaumont		710						
DeSoto	Hopkins to Fauquier		453	1540					
Douglas	Seventh to Ramsey		1144						
Duke	Seventh to Cascade		1057						
Dousman	Von Minden to Goodhue		576						
Delos	Greenwood to Dakota		1647						
Daly	James to Jefferson		986						
Eagle	Spring to Seventh		254						
Eighth	Wabasha to 110 east of Nell	4691							
Eleventh	Cedar to Olive	557	1238						
Elm	Exchange to Milwaukee S line	406							
Exchange	Wabasha to Wilkin	3962							
Eaton	At Indiana & Fairfield cos'ng		51		100				
Edgerton	Minnehaha to Reaney		328						
Emma	Western to Short Line		373						
Fairfield	State to Dakota		2812						
Fauquier	Payne to DeSoto			1982					
Fifth	Third to Kittson	4902	1409						
Forbes	Ramsey to Pleasant		545						
Fort	Seventh to Tenth					1616			
Fourth	Kittson to Exchange		4865	1877					
Fourteenth	Canada to Robert		1033						
Franklin	Elm to Ninth	2784							
Fillmore	Dakota to State		2808						
Garfield	Ramsey to Goodrich		1002						
Genesee	Mississippi to Buffalo		814						
Goodhue	Cliff to Richmond		2122						
Goodrich	Milwaukee S line to Western		1260	1110					
Grace	Seventh to Colborne		72						
Granite	Mississippi to Courtland		1604						
Grove	Monroe to Jackson	133	1310			1544			
Glencoe	Mississippi to Columbia		547						
Hopkins	DeSoto to Bradley		700						
Indiana	Dakota to State			457	2242				
Isabel	State to Charlton			5055					
Jackson	Levee to University	40	1223	3179		108			
Jefferson	Seventh to Webster			532					
James	185 feet west of Seventh		258						
Jessie	Minnehaha to Fauquier		634						
John	Third to Williams	1810	1528						
Kittson	Fourth to Seventh		846						
Kentucky	Crossing State		55						

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM, OR LOW SERVICE, TO DECEMBER 1, 1888.—Continued.

Street or avenue.	From Street to Street.	Number of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Lafayette	Grove to DeSoto	205		150	1915				
Lee	Seventh to Drake		1445						
Leech	Goodrich to Ramsey		1146						
Levee	Sibley to Jackson	340							
Locust	Seventh to Grove				1025				
L'Orient	Thirteenth to Pennsylvania		1890						
Livingston	Delos to Wood		580						
McBoal	Wilkin to Douglas		1301						
Magnolia	Crossing Mississippi		18						
Market	Third to Fourth	250							
Minnehaha	Payne to Bradley		1015						
Minnesota	Third to Twelfth	1484	1428						
Mississippi	Grove to Terminal Chamber		5880					16436	18
Monroe Place	Grove to Woodward	300							
Mt. Airy	Mississippi to L'Orient		330						
Mt. Ida	DeSoto to Otsego		180						
Michigan	Crossing Seventh		59						
Nash	Pine to L'Orient		698						
Neill	Seventh to Eighth	325							
Ninth	Neill to Smith avenue	975	5145						
Norris	Canada to Temperance	761							
North	Bedford to DeSoto		851						
Olive	Sixth to Olmsted	1484							
Olmsted	John to Pine		651						
Oneida	South of Seventh		36						
Otsego	Lafayette to Mt Ida		791						
Partridge	Bradley to DeSoto	472							
Pine	Ninth to Olmsted	602	965						
Pleasant	Sixth to Ramsey		3117						
Prairie	Douglas to 40ft. W of West'rn		1341						
Prince	John to Broadway		825						
Payne	Beaumont to Omaha R. R.		1092						
Pennsylvania	Mississippi to L'Orient		344						
Preble	Beaumont to Minnehaha		471						
Ramsey	Seventh to Pleasant		1352		307				
Randolph	Seventh to Milton		69	2818					
Richmond	South of Seventh		27						
Robert	Concord to Central avenue		7973						
Rosney	Payne to Edgerton		657						
Rosabel	Third to Seventh		1437						
Robie	State to Brown		1817						
St. Clair	Seventh to Colborne		40	64					
St. Peter	Third to College		2866						
Seventh	Duluth R. R. to Tuscarora	350	1038	2241	13847	1508			
Second	East of Robert		18						
Sherman	Bluff to Pleasant		1937						
Sibley	Levee to Norris	1638	1450						
Sixth	Kittson to Pleasant	4636	1893						
Smith street	Wilkin to Douglas		1074						
Smith avenue	College to McBoal		3924						
Somerset	John to Pine	669							
Spruce	Sibley to Wacouta	303							
State	Mississippi river to Concord				5684				
Summit ave.	Robert to Cedar		859						
Temperance	Eighth to Thirteenth	1569							
Tenth	Locust to College	1765	2123			1390			
Third	John to College		5264	2202					
Thirteenth	Pine to Jackson	310	1765						
Twelfth	Pine to Cedar	290				1274			
Toronto	South of Seventh		35						
Tennessee	Crossing State		51						
Tuscarora	East of Seventh		37						
Wabasha	Third to Summit		3336			26			
Wacouta	Third to Spruce	1141	1378						
Walnut	100 ft. South of Irvine Park to Pleasant	2420							
Warraw	South of Seventh		35						
Washington	Chestnut to Sixth	2043							

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM, OR LOW SERVICE, TO DECEMBER 1, 1888.—Concluded.

Street or avenue.	From Street to Street.	Number of Feet and Size of Pipe.							
		4 in.	6 in.	12 in.	16 in.	20 in.	24 in.	30 in.	36 in.
Waverly Place	Lafayette to John		411						
Webster	Clay to Seventh		316						
Western	Milwaukee R. R. to Prairie		2380						
Westminster	Waverly Place to N. P. R. R.		1022						
Willius	Fifth to Seventh	550							
Wilkin	Milwaukee to Sherman		1215						
Winifred	Concord to Andrew		3322						
Woodward	Burr to Bradley	319							
Von Minden	Dousman to Western		897						
Yankee	East of Seventh	31							
Main Line—old	Fauquier to Lake Phalen				6000		7024		
Totals		46790	148160	30074	34147	8080	8765	16436	18

Low service—

Total 4 inch pipe	46790
Total 6 inch pipe	148160
Total 12 inch pipe	30074
Total 16 inch pipe	34147
Total 20 inch pipe	8080
Total 24 inch pipe	8765
Total 30 inch pipe	16436
Total 36 inch pipe	18

292470 feet, or 55 miles and 2070 feet.

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1888.

Street or avenue.	From street to street.	Number of feet and size of pipe.						
		4	6	12	16	20	24	36
Arundel	Summit to Iglehart	1575						
Ashland	Western to Avon		4570					
Aurora	Robert to Dale		5222					
Arcade	Seventh to Magnolia			4348				
Astoria	St. Anthony to Mil. Avenue		275					
Bates	Seventh to Hastings			3035				
Beech	Seventh to Duluth		3738					
Blair	Western to Dale		2642					
Broadway	Thirteenth to Mt. Airy		407		533			
Brewster	University to Como		1076					
Burr	Omaha R. R. to Jenks		1936					
Bremer	Waltham to University		1211					
Canada	University to Valley		290					
Capitol	West of Western		20					
Carroll	Rice to Cleveland		11615					
Conway	Forest to Marin		2403					
Cedar	Summit to Como		2486					
Central Ave	East line of Central P. to Rice	557	1254					
Central Park Drive, E.	Summit to Central Ave	602						
Central Park Drive W	Summit to Central Ave	607						
Charles	Rice to St. Albans		4556					
College	Rice to Third		1165					
Como	Rice to Dale					6555		
Cherry	67 west of Hoffman to Marin	267	565					
Cook	Crossing Payne		75					
Case	Forest to McMenemy			6504				
Dale	Fairmount to Reservoir	3184		2110	5280	1453	12247	1560
Dayton	Summit to 70 feet W. of Victoria		2718	4675				
Earl	Beech to Seventh			1641				
Edmund	Rice to Grotto		6556					
Eichenwald	Sixth to Seventh		532					
Ellen	Rice to Dale		5280					
Euclid	Maple to Earl		2391					
Farrington	Summit to Carroll		2400					
Fauquier	Frank to Welde		3606					
Fuller	Rice to Dale		4607					
Fifth	Maple to 340 feet west of Marin		1438					
Floral	Grand to Summit	480						
Fourth	Mendota to 400 ft. west of Marin		2705					
Francis	Mendota to Arcade		575					
Front	Rice to Dale			5285				
Forrest	Wells to Case		968					
Fairmount	Dale to Grotto		956	518				
Feronia	Fairview to Prior		1360					
Freemont	Mendota to Forrest		645					
Grand	Lawton to 63 ft. west of Milton		5008					
Grove	Seventh to Pine				2618			
Grotto	Lincoln to Marshall		3522					
Goodrich	From 180 feet west of Victoria to 782 feet east of Dale		3623					
Greenbrier	Seventh to Margaret			650				
Hoffman	Clermont to Seventh		2601					
Holly	Western to Avon		4585					
Hague	Dale to Victoria		2600					
Hudson	Marin to Mendota		1084	194				
Hastings	Bates to Mound			406				
Iglehart	Wabasha to Cleveland		11775					
Jackson	Viola to Manitoba bridge		236	1084	145			
Jay	St. Anthony to Fuller		656					
Kent	Portland to Carroll	2201						

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1888.—Continued.

Street or avenue.	From street to street.	Number of feet and size of pipe.						
		4	6	12	16	20	24	36
Kenwood Park	St. Albans around said park		767					
Laurel	Nina to Fisk		5982					
Lawton	Grand to Summit		480					
Lincoln	Oakland to Milton		4231					
Louis	Nelson to Fuller		2122					
Linden	At Mt. Airy		50					
Lafond	Western to Grotto		3916					
Lynnhurst, W	University to Feronia		1084					
Lynnhurst, E	Feronia to Lynnhurst, west		766					
McCarron road	Pump house to Dale					6124		
Mackubin	Summit to Ellen		5604					
Maple	Hudson to Seventh		2660	6				
Margaret	Earl to Greenbrier		3862					
Martin	Central to Dale		5854					
Maria	Cherry to Eighth		3706					
Marshall	Western to Victoria		2640	2640				
Mendota	Hudson to Fauquier		655	3286				
Mt. Airy	L'Orient to Robert		2024					
Maryland	At Dale			10				
Marion	University to Lafond		1639					
Minnehaha	West of Dale			22				
Mound	Hastings to Burns			1298				
Milwaukee Ave	Merriam Place to Astoria		570					
Nelson	Summit to Western		2422					
Nina	Summit to Selby		800					
Oakland	Ramsey to Summit		3662					
Olive	Olmsted to Pennsylvania		1057					
Oakley	Lynnhurst west to Prior		451					
Park Place	Park Drive southwest	574						
Park Ave	Martin to Viola		1436					
Pine	Grove to Pennsylvania		1820					
Portland	Summit to Avon		4589					
Pennsylvania	Olive to Pine		342					
Plum	Maria to Hoffman		530					
Prior	Marshall to University			3389				
Payne	Omaha R. R. to Cook		2715					
Rice	College to Manitoba R. R		495	1207	2390	1154		
Robert	From 171 feet south of University to Mt. Airy		770					
Rondo	Rice to Terrace Park Ave		5985					
Reaney	Frank to Greenbrier		4478					
Ramsey	Oakland to Summit		1259					
Ross	Atlantic to Seventh		2450					
Ravoux	Rondo to St. Anthony	288						
River	Maria to Hoffman	342						
Ravine	Maple to 344 feet west of Maria	1423						
St. Anthony	Rice to Cleveland		7639					
St. Peter	College to University		2557					
Selby	Summit to Victoria		7229					
Seventh	Duluth Ave. to Grove				8420			
Sherburne	Jackson to Rice	400	1308					
Sinnen	Sixth to Seventh		541					
Suction main	Pump house to terminal chamber						907	
Summit Ave	C. Park drive east to Mil. R. R.	260	4316	10830				
Summit Place	Nelson to Fuller		2122					
St Albans	300 ft. S. of Fairmount to Iglehart	376	300					
Sims	Arcade to Payne		1962					
Summit Ct. alley	East of Lawton		362					
Short	Maria to Hoffman		572					
Third	Cypress to Summit		3881					
Thirteenth	Pine to Broadway				778			
Tilton	Wabasha to Rice		1278					

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1888—Concluded.

Street or avenue.	From street to street.	Number of feet and size of pipe.						
		4	6	12	16	20	24	36
Thomas	Western to Dale		2642					
Topping	West of Como		72					
University	Broadway to Prior			5304	3504	14579		
Valley	Broadway to Jackson				1789			
Viola	Jackson to Rice		1653					
Victoria	Marshall to Carroll		660					
Virginia	Summit to Rondo	513	1798					
Van Buren	Western to Dale		649					
Wabasha	Summit to Park ave	537	842					
Western	Summit to Como ave			1775	6285			
Williams	Olive to Mississippi		857					
Waltham	Bremer to Prior	959						
Wilder	Iglehart to St. Anthony		1388					
York	Forest to Edgerton		3879					
Total		15145	250313	60217	31832	29865	13154	1560

High service.

Total 4 inch pipe	15145
Total 6 inch pipe	250313
Total 12 inch pipe	60217
Total 16 inch pipe	31832
Total 20 inch pipe	29865
Total 24 inch pipe	13154
Total 36 inch pipe	1560
	402086 feet or 76 miles and 806 feet.

Total pipe laid on High and Low service to December 1, 1888:

High service	402086
Low service	292470
	694556 feet, or 131 miles and 2876 feet.

Also 4½ miles of brick aqueduct 5½x6 feet with necessary waste weirs and gate houses.

LIST OF HYDRANTS.

No.	Location.	Service.	Double or single steamer	Size of pipe	Pressure at hydrant.
1	Monroe and Woodward	Low	Single	4	36
2	Grove and Lafayette	"	"	6	38
3	Westminster and Waverly	"	"	6	36
4	Westminster, 450 feet north of Waverly	"	"	6	36
5	Grove and Olive	"	"	6	39
6	John and Somerset	"	"	4	36
7	Olive and Somerset	"	"	4	36
8	Pine and Thirteenth	"	"	6	36
9	Thirteenth and Mississippi	"	"	6	36
10	Grove and Mississippi	"	"	20	37
11	Pine and Eleventh	"	"	4	37
12	Canada and Grove	"	"	6	36
13	Canada and Spruce	"	"	6	36
14	Grove, in middle of blk bet. Canada & Temperance	"	"	20	34
15	Jackson and Grove	"	"	6	30
16	Robert and Twelfth	"	"	6	28
17	Robert and Eleventh	"	"	6	26
18	Minnesota and Eleventh	"	"	6	26
19	Eleventh and Cedar	"	"	6	23
20	College and Wabasha	"	"	6	23
21	Wabasha and Tenth	"	"	6	25
22	St. Peter and Tenth	"	"	6	23
23	St. Peter and College	High	"	6	91
24	St. Peter and Summit	"	"	6	80
25	Tenth and College	Low	"	6	20
26	Tenth, between St. Peter and Fort	"	"	20	25
27	St. Peter and Exchange	"	"	6	27
28	Wabasha and Exchange	"	"	6	27
29	St. Peter and Ninth	"	"	6	29
30	Wabasha and Ninth	"	"	6	30
31	Jackson and Ninth	"	"	6	37
32	Ninth and Sibley	"	"	6	39
33	Ninth and Canada	"	"	6	40
34	Ninth and Pine	"	"	6	41
35	Ninth and John	"	"	6	41
36	Ninth and Locust	"	"	6	42
37	Eighth and Neill	"	"	4	45
38	Fifth and Locust	"	"	6	54
39	Eighth and Olive	"	"	4	43
40	Broadway and Eighth	"	"	6	42
41	Eighth and Wacouta	"	"	4	41
42	Jackson and Eighth, northeast corner	"	Double	12	40
43	Robert and Eighth	"	Single	6	38
44	Burr and Partridge	"	"	6	33
45	Burr and Hopkins	"	"	6	29
46	DeSoto and Hopkins	"	"	6	30
47	Third and Smith	"	"	6	29
48	Third and Pleasant	"	"	6	25
49	College and Third	High	"	6	82
50	Exchange and Sherman	Low	"	4	35
51	Walnut and Exchange	"	"	4	36
52	Sherman and Seventh	"	"	6	34
53	Seventh and Walnut, southeast corner	"	Double	20	37
54	Chestnut and Seventh, northeast corner	"	Single	6	35
55	Fort and Third	"	"	20	32
56	Fourth and Seventh	"	"	12	32
57	Seventh, back of Winslow House	"	"	12	31
58	Seventh and Fifth	"	"	12	30
59	Seventh and Franklin	"	"	12	30
60	Seventh and Sixth	"	"	12	31
61	Seventh and St. Peter	"	"	12	31
62	Seventh and Wabasha, northwest corner	"	"	16	32
63	Cedar and Seventh, northwest corner	"	"	12	38
64	Seventh and Minnesota, northwest corner	"	"	16	40
65	Seventh and Robert, northwest corner	"	Double	16	41
66	Jackson and Seventh, northeast corner	"	"	12	42
67	Seventh and Sibley	"	Single	16	43
68	Seventh and Wacouta	"	"	16	42
69	Seventh and Rosabel	"	"	16	41

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
70	Broadway and Seventh	Low	Single	16	41
71	Seventh and Pine	"	"	16	40
72	Seventh and Olive	"	"	16	41
73	Seventh and John	"	"	16	43
74	Seventh and Locust	"	"	16	44
75	Seventh and Neill	"	"	6	48
76	Willius and Sixth	"	"	4	48
77	Sixth and Pine	"	"	4	40
78	Jackson and Sixth, northeast corner	"	Double	12	45
79	Robert and Sixth	"	Single	6	44
80	Sixth and Minnesota	"	"	4	42
81	Sixth and Wabasha	"	"	6	30
82	Fifth and Washington	"	"	4	30
83	Fifth and Wabasha	"	"	6	28
84	Fifth and Cedar	"	"	4	41
85	Fifth and Minnesota	"	"	4	43
86	Robert and Fifth	"	"	12	44
87	Jackson and Fifth, S. E. C.	"	Double	12	46
88	Fourth and Sibley, N. W. C.	"	Single	6	52
89	Jackson and Fourth, S. E. C.	"	Double	12	48
90	Fourth and Robert	"	Single	6	44
91	Fourth and Minnesota, N. W. C.	"	"	6	42
92	Fourth and Wabasha	"	"	6	28
93	Washington and Fourth	"	"	4	32
94	Third and Exchange	"	"	6	32
95	Third, between Exchange and Franklin	"	"	6	32
96	Third and Franklin	"	"	6	32
97	Third and Washington	"	"	6	32
98	Third and Market	"	"	6	32
99	Washington and Eagle	"	"	4	62
100	Third and St. Peter	"	"	6	30
101	Wabasha and Third	"	"	6	28
102	Cedar and Third	"	"	12	30
103	Third and Minnesota	"	"	6	40
104	Third and Robert	"	"	6	45
105	Third and Jackson, S. E. C.	"	"	6	52
106	Sibley and Third S. W. C.	"	Double	6	60
107	Jackson and Levee	"	Single	6	66
108	Jackson and Tenth	"	"	12	32
109	Jackson and Eleventh	"	"	12	30
110	Sibley and Levee	"	"	4	66
111	St. Peter and Fifth	"	"	6	30
112	Ninth and Robert	"	"	6	33
113	Tenth and Wacouta	"	"	4	38
114	Mississippi and Nash	"	"	6	32
115	Broadway and Twelfth	"	"	6	37
116	Broadway and Tenth	"	"	6	39
117	Elm and Franklin	"	"	4	22
118	Ninth and Cedar	"	"	6	32
119	Fourth and St. Peter	"	"	6	30
120	Sixth and Cedar	"	"	4	40
121	Fourth and Franklin	"	"	6	30
122	Seventh and Leech	"	"	12	30
123	Grove and John	"	"	6	38
124	Grove and Pine	"	"	6	39
125	Canada and Tenth	"	"	6	38
126	Ninth and Wacouta	"	"	6	40
127	Eighth and Temperance	"	"	4	41
128	Seventh and Willius	"	"	6	47
129	Seventh and Kittson	"	"	6	50
130	Ramsey and Leech	"	"	6	32
131	Collins and Lafayette	"	"	6	18
132	Sibley and Fifth	"	"	6	45
133	Willius and Fifth	"	"	4	55
134	Eighth and Willius	"	"	4	44
135	Sibley and Tenth	"	"	4	38
136	Pleasant, between Third and Chestnut	"	"	6	27
137	Pleasant and Chestnut	"	"	6	28
138	Pleasant and Walnut	"	"	6	28

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
139	Smith avenue, between Third and Chestnut	Low	Single	6	30
140	Fort, between Ninth and Tenth	"	"	20	25
141	Fort and Ninth	"	"	20	27
142	Fort and Sixth	"	"	20	29
143	Fort and Fifth	"	"	20	31
144	Canada and Thirteenth	"	"	6	36
145	Thirteenth, between Canada and Temperance	"	"	6	36
146	Thirteenth and Temperance	"	"	6	34
147	Mississippi and Mt. Airy	"	"	6	30
148	Mississippi and Glencoe	"	"	6	26
149	Mississippi, between Glencoe and Pennsylvania	"	"	6	24
150	Mississippi and Pennsylvania	"	"	6	22
151	Pine and Nash	"	"	6	36
152	Olmsted and Pine	"	"	6	36
153	Olmsted and Olive	"	"	6	37
154	Olmsted and John	"	"	6	37
155	Ninth and Exchange	"	"	6	29
156	Ninth and Franklin	"	"	6	30
157	Wabasha and Summit	"	"	6	17
158	Robert and Tenth	"	"	6	26
159	Canada and Norris	"	"	6	38
160	Norris and Sibley	"	"	4	38
161	Spruce and Wacouta	"	"	4	38
162	Spruce and Sibley	"	"	4	38
163	College, between St. Peter and Tenth	"	"	6	20
164	Fourth and Wacouta	"	"	6	56
165	Sibley and Fifth	"	"	6	48
166	Walnut and Smith avenue	"	"	4	33
167	Fourth and Rosabel	"	"	6	58
168	Broadway, 150 feet south of Third	"	"	16	66
169	Third and Broadway, northeast corner	"	Double	12	65
170	Third and Rosabel	"	"	12	64
171	Third and Wacouta, northwest corner	"	"	12	63
172	Rice and Summit	High	Single	6	86
173	Fourth and Market	Low	"	6	30
174	Collins and Bedford	"	"	6	22
175	Burr and Collins	"	"	6	12
176	Tenth and Pine	"	"	6	40
177	Tenth and Olive	"	"	6	40
178	Tenth and John	"	"	6	40
179	Fourteenth and Canada	"	"	6	33
180	Fourteenth, between Canada and Jackson	"	"	6	35
181	Partridge and Bradley	"	"	4	30
182	Fourth and Broadway, northwest corner	"	"	6	61
183	Exchange and Sixth	"	"	4	30
184	North and Burr	"	"	6	16
185	North and DeSoto	"	"	6	18
186	Rosabel and Fifth	"	"	6	52
187	Rosabel and Sixth	"	"	6	46
188	Pleasant and Sherman	"	"	6	30
189	Fourth and Jackson, northwest corner	"	"	6	48
190	John and Fourth	"	"	6	62
191	John and Fifth	"	"	6	53
192	John and Sixth	"	"	6	45
193	Bruno and Lafayette	"	"	6	40
194	Canada and University	"	"	6	27
195	Becker and Lafayette	"	"	6	25
196	Pleasant and Sixth	"	"	6	22
197	Jackson and Thirteenth	"	"	6	30
198	Jackson and Fourteenth	"	"	6	27
199	Wilkin and McBoal	"	"	6	32
200	Wacouta and Third, southeast corner	"	"	6	63
201	McBoal and Leech	"	"	6	32
202	Wacouta and Sixth	"	"	6	45
203	Wacouta and Fifth	"	"	6	51
204	Fifth and Broadway	"	"	4	54
205	Sixth and Broadway	"	"	4	47
206	Tenth and Minnesota	"	"	6	26
207	Tenth and Cedar, northeast corner	"	"	6	26

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
208	Jackson and Fifteenth	Low	Single	6	20
209	Cedar and Eighth	"	"	12	36
210	Cedar and Exchange	"	"	12	28
211	Ninth and Minnesota	"	"	6	33
212	Wilkin and Smith	"	"	6	34
213	Fifth and Neill	"	"	6	56
214	Kittson and Fifth	"	"	6	57
215	Kittson and Sixth	"	"	6	53
216	Sixth and Neill	"	"	4	52
217	Otsego and Mt. Ida	"	"	6	8
218	Bradley and Woodward	"	"	6	32
219	Bradley and North	"	"	6	27
220	Hopkins and Bradley	"	"	6	28
221	Smith and Chestnut	"	"	6	21
222	Bedford and Beaumont	"	"	6	15
223	Bedford and Minnehaha	"	"	6	12
224	Forbes and Pleasant	"	"	6	31
225	Forbes and Ramsey	"	"	6	32
226	Smith avenue and Smith street	"	"	6	31
227	Fourth and Cedar	"	"	6	35
228	Eighth and Minnesota	"	"	4	37
229	Beaumont and Bradley	"	"	6	12
230	Beaumont and DeSoto	"	"	6	12
231	Burr and Beaumont	"	"	6	11
232	Burr and Minnehaha	"	"	6	8
233	Burr and Fauquier	"	"	6	10
234	Smith avenue and Seventh street	"	"	6	30
235	Fourth and Pine	"	"	12	60
236	Fourth and Olive	"	"	12	62
237	Smith street and Seventh	"	"	6	31
238	Fourth and Exchange	"	"	6	32
239	McRoal and Seventh	"	"	6	30
240	St. Peter and Sixth	"	"	6	30
241	Prince and Pine	"	"	6	64
242	Prince and Olive	"	"	6	65
243	Prince and John	"	"	6	65
244	Mt. Airy and L'Orient, northeast corner	"	"	6	20
245	Smith avenue and Fifth	"	"	6	29
246	Smith avenue and Sixth	"	"	6	26
247	Smith avenue and College	"	"	6	18
248	Douglas and Seventh	"	"	6	31
249	Goodrich and Seventh	"	"	6	31
250	Goodrich and Smith avenue	"	"	6	35
251	Goodrich and Leech	"	"	6	36
252	Acker and Mississippi	"	"	6	20
253	Genesee and Mississippi	"	"	6	23
254	Granite and Mississippi	"	"	6	25
255	Second and Robert	"	"	6	53
256	Pleasant and Ramsey	"	"	6	29
257	Ramsey and Douglas	"	"	6	32
258	Sherman and Franklin	"	"	6	33
259	Chestnut and Exchange	"	"	6	45
260	Exchange and Eagle	"	"	4	46
261	Williams and Pine	High	"	6	87
262	Pine, 200 feet south of Williams	"	"	6	85
263	Topping and Como	"	"	6	72
264	Capitol and Western	"	"	6	71
265	Blair and Western	"	"	6	73
266	Thomas and Western	"	"	6	72
267	University and Western	"	"	12	73
268	Aurora and Western	"	"	6	74
269	Fuller and Western	"	"	6	70
270	Martin and Western	"	"	6	67
271	St. Anthony and Western	"	"	6	70
272	Rondo and Western	"	"	6	73
273	Carroll and Western	"	"	6	67
274	Iglehart and Western	"	"	6	55
275	Marshall and Western	"	"	6	46
276	Dayton and Western	"	"	12	45

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
277	Western and Selby	High	Single	12	45
278	Western and Laurel	"	"	12	46
279	Western and Ashland	"	"	12	46
280	Western and Holly	"	"	12	47
281	Western and Portland	"	"	12	47
282	Summit and Portland	"	"	12	47
283	Summit and Arundel	"	"	12	45
284	Summit and Mackubin	"	"	12	45
285	Summit and Kent	"	"	12	49
286	Summit and Oakland	"	"	12	50
287	Holly and Dale	"	"	6	50
288	Holly and Kent	"	"	6	48
289	Holly and Mackubin	"	"	6	44
290	Holly and Arundel	"	"	6	45
291	Ashland and Arundel	"	"	6	45
292	Ashland and Mackubin	"	"	6	43
293	Ashland and Kent	"	"	6	45
294	Ashland and Dale	"	"	6	50
295	Laurel and Dale, N. E. C.	"	"	6	47
296	Laurel and Kent	"	"	6	43
297	Laurel and Mackubin, N. W. C.	"	"	6	42
298	Laurel and Arundel	"	"	6	42
299	Dayton and Dale	"	"	12	42
300	Dayton and Kent	"	"	12	42
301	Dayton and Mackubin	"	"	12	42
302	Dayton and Arundel	"	"	12	44
303	Dayton and Virginia	"	"	12	44
304	Dayton and Farrington	"	"	12	44
305	Dayton, between Summit and Farrington	"	"	12	55
306	Summit and Dayton	"	"	6	58
307	Summit and Selby	"	"	6	50
308	Summit, head of Walnut	"	"	6	51
309	Summit and Nina	"	"	6	45
310	Summit and Farrington	"	"	6	42
311	Summit and Virginia	"	"	6	45
312	Farrington and Laurel	"	"	6	46
313	Farrington and Selby	"	"	6	44
314	Selby and Nina	"	"	6	44
315	Nina and Laurel	"	"	6	45
316	Westminster, 200 feet south of St. P. M & M. R. R	Low	"	6	33
317	Thirteenth and Broadway	"	"	6	36
318	Temperance and Norris	"	"	4	35
319	Banil and Seventh	"	"	4	31
320	Goodhue and Seventh	"	"	6	31
321	Yankee and Seventh	"	"	4	31
322	Western and Seventh	"	"	6	31
323	St. Clair and Seventh	"	"	6	31
324	Richmond and Seventh	"	"	6	31
325	Seventh and Colborne	"	"	16	32
326	Chestnut and Franklin	"	"	6	52
327	Twelfth and Jackson	"	"	20	29
328	Twelfth and Minnesota	"	"	20	27
329	Twelfth and Cedar	"	"	20	24
330	Cedar and Summit	"	"	6	22
331	Chestnut and Washington	"	"	6	60
332	Laurel and Virginia	High	"	6	45
333	Selby and Virginia	"	"	6	45
334	Mackubin and Laurel, S. W. C.	"	"	6	42
335	Portland and Arundel	"	"	6	44
336	Portland and Mackubin	"	"	6	41
337	Portland and Kent	"	"	6	45
338	Portland and Dale	"	"	6	45
339	Selby and Arundel	"	"	6	45
340	Selby and Mackubin	"	"	6	44
341	Selby and Kent	"	"	6	44
342	Selby and Dale	"	"	6	45
343	Carroll and Arundel	"	"	6	54
344	Carroll and Mackubin	"	"	6	51
345	Carroll and Kent	"	"	6	40

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
346	Kent and Iglehart	High	Single	4	46
347	Marshall and Dale	"	"	6	44
348	Marshall and Kent	"	"	6	42
349	Marshall and Mackubin	"	"	6	45
350	Rondo and Arundel	"	"	6	69
351	Rondo and Mackubin	"	"	6	60
352	Iglehart and Arundel	"	"	6	55
353	Iglehart and Mackubin	"	"	6	55
354	Marshall and Arundel	"	"	6	45
355	McBoal and Douglas	Low	"	6	30
356	Douglas and Prairie	"	"	6	30
357	Summit and Third	High	"	12	60
358	Summit and Nelson	"	"	12	62
359	College and Sixth	"	"	6	80
360	Nelson and Virginia	"	"	6	44
361	Nelson and Farrington	"	"	6	44
362	Nelson and Louis	"	"	6	54
363	Nelson and Summit Place	"	"	6	59
364	Carroll and Virginia	"	"	6	69
365	Carroll and Farrington	"	"	6	70
366	Carroll and Louis	"	"	6	72
367	Carroll and Summit Place	"	"	6	79
368	Carroll and Ravoux	"	"	6	82
369	Park Place Park	"	"	4	78
370	Iglehart and Virginia	"	"	6	50
371	Iglehart and Farrington	"	"	6	58
372	Iglehart and Louis	"	"	6	65
373	Douglas and Lisbon	Low	"	6	32
374	Iglehart and St. Peter	High	"	6	78
375	Iglehart and Wabasha	"	"	6	84
376	Iglehart and Summit Place	"	"	6	70
377	Iglehart and Ravoux	"	"	6	77
378	Iglehart and Rice	"	"	6	80
379	Rice and Rondo	"	"	16	77
380	Rice and St. Anthony	"	"	16	75
381	Rice and Martin	"	"	16	72
382	Rice and Fuller	"	"	16	72
383	Rice and Aurora	"	"	16	72
384	Rice and University	"	"	20	73
385	Rice and Ellen	"	"	20	74
386	Rice and Charles	"	"	20	74
387	Rice and Edmund	"	"	20	75
388	Rice and Como	"	"	12	74
389	Tilton and St. Peter	"	"	6	74
390	Smith avenue and Ramsey	Low	"	6	32
391	St. Peter and Martin	High	"	6	73
392	Martin and Park	"	"	6	74
393	Central and Wabasha	"	"	6	77
394	Tilton and Wabasha	"	"	6	80
395	Central and Cedar	"	"	6	72
396	Aurora and Cedar	"	"	6	64
397	Aurora and Robert	"	"	6	76
398	Smith avenue and Sherman	Low	"	6	33
399	Bradley and Seventh, northwest corner	"	"	6	33
400	Broadway and Fourteenth	"	"	4	35
401	Summit and Dale	High	"	12	45
402	Seventh and Brook	Low	"	6	48
403	Tenth and Cedar, northwest corner	"	"	20	26
404	Grand and Lawton	High	"	6	47
405	Grand and Floral	"	"	6	44
406	Grand and Oakland	"	"	6	56
407	Grand and Dale	"	"	6	51
408	Grand and St. Albans	"	"	6	50
409	Valley and Broadway	"	"	16	100
410	Grand and Grotto	"	"	6	46
411	Grand and Avon	"	"	6	44
412	Grand and Victoria	"	"	6	44
413	University and Marion	"	"	12	78
414	University and Gaultier	"	"	12	76

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pressure at hydrant.
415	University and Farrington	High	Single	12	76
416	University and Virginia	"	"	12	76
417	Marshall and St. Albans	"	"	12	48
418	University and Arundel	"	"	12	78
419	Dayton and St. Albans	"	"	6	46
420	Dayton and Grotto	"	"	6	45
421	Dayton and Miller	"	"	6	44
422	Dayton and Fisk	"	"	6	46
423	St. Peter and Aurora	"	"	6	70
424	St. Peter and University	"	"	6	68
425	Park and University	"	"	6	67
426	Cedar and University	"	"	6	58
427	Cedar and Sherburne	"	"	6	50
428	Sherburne, 350 feet east of Cedar	"	"	4	52
429	Hoffman and Seventh	"	"	6	105
430	Fourth, 400 feet west of Maria	"	"	6	95
431	Maria and Seventh	"	"	6	93
432	Maria and Sixth	"	"	6	92
433	Maria and Fifth	"	"	6	93
434	Maria and Fourth	"	"	6	95
435	Maria and Third	"	"	6	97
436	Maria and Conway	"	"	6	98
437	Maria and Ravine	"	"	6	99
438	Maria and Euclid	"	"	6	100
439	Maria and Hudson	"	"	6	96
440	Bates and Plum	"	"	12	82
441	Bates and Hudson	"	"	12	81
442	Bates and Euclid	"	"	12	79
443	Bates and Ravine	"	"	12	77
444	Bates and Conway	"	"	12	76
445	Bates and Third	"	"	12	80
446	Bates and Fourth	"	"	12	75
447	Bates and Fifth	"	"	12	78
448	Bates and Sixth	"	"	12	72
449	Bates and Seventh	"	"	12	78
450	Fifth and Maple	"	"	6	65
451	Third and Maple	"	"	6	68
452	Hudson and Maple	"	"	6	68
453	Valley and Canada	"	"	16	90
454	Seventh and Maple	"	"	16	92
455	Seventh and Hope	"	"	16	59
456	Seventh and Margaret	"	"	16	60
457	Seventh and Beech	"	"	16	69
458	Goodhue and Dousman	Low	"	6	36
459	Goodhue and Cliff	"	"	6	35
460	Grace and Colborne	"	"	6	32
461	Colborne and Jefferson	"	"	6	33
462	Duke and Seventh	"	"	6	32
463	Seventh and Minnehaha	High	"	16	73
464	Seventh and Reaney	"	"	16	70
465	Seventh and Forrest	"	"	16	69
466	Nash and L'Orient	Low	"	6	35
467	Jessie and Fauquier	"	"	6	12
468	Seventh and Jefferson	"	"	16	33
469	Seventh and Fauquier	High	"	16	72
470	Seventh and Cypress	"	"	16	79
471	Seventh and Ross	"	"	16	80
472	Seventh and Earl	"	"	16	83
473	Ross and Earl	"	"	6	80
474	Edmund and Marion	"	"	6	76
475	Fauquier and Cypress	"	"	6	76
476	Fauquier and Earl	"	"	6	75
477	Fauquier and Payne	Low	"	12	6
478	Fauquier and Edgerton	"	"	12	8
479	Fauquier and Bradley	"	"	12	14
480	DeSoto and Fauquier	"	"	12	15
481	DeSoto and Minnehaha	"	"	12	5
482	Fifth, 350 feet west of Maria	High	"	6	92
483	Fauquier and Forrest	"	"	6	72
484	Fauquier and Mendota	"	"	6	81

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
485	Fauquier and Arcade	High	Single	6	80
486	Lincoln, between Oakland and Dale	"	"	6	55
487	Lincoln and Dale	"	"	6	50
488	Hoffman and Sixth	"	"	6	104
489	Mendota and Reaney	"	"	6	76
490	Ninth and Broadway	Low	"	6	41
491	Oneida and Seventh	"	"	6	30
492	Franklin and Fifth	"	"	4	30
493	Eleventh and Olive	"	"	4	37
494	Martin and Arundel	High	"	6	65
495	Lincoln and St. Albans	"	"	6	52
496	Lincoln and Grotto	"	"	6	44
497	Lincoln and Avon	"	"	6	44
498	Fuller and Arundel	"	"	6	66
499	Fuller and Mackubin	"	"	6	66
500	Fuller and Kent	"	"	6	67
501	Goodhue and Ann	Low	"	6	30
502	Goodhue and Western	"	"	6	30
503	Goodhue and Richmond	"	"	6	31
504	Portland and St. Albans	High	"	6	48
505	Aurora and Kent	"	"	6	68
506	Aurora and Mackubin	"	"	6	66
507	Aurora and Arundel	"	"	6	70
508	Holly and St. Albans	"	"	6	48
509	Holly and Grotto	"	"	6	46
510	Holly and Avon	"	"	6	44
511	Martin and Ravoux	"	"	6	73
512	Martin and Summit Place	"	"	6	75
513	Central and St. Peter	"	"	4	73
514	Maria and Eighth	"	"	6	88
515	Bradley and Seventh, S. E. C.	Low	"	6	35
516	Ashland and St. Albans	High	"	6	49
517	Ashland and Grotto	"	"	6	46
518	Ashland and Avon	"	"	6	44
519	Goodrich and Dousman	Low	"	12	31
520	Goodrich and Garfield	"	"	12	30
521	Goodrich and Western	"	"	12	32
522	Eichenwald and Sixth	High	"	6	60
523	Eichenwald and Seventh	"	"	6	60
524	Sinnen and Sixth	"	"	6	58
525	Hague and St. Albans	"	"	6	48
526	Hague and Grotto	"	"	6	46
527	Hague and Miller	"	"	6	44
528	Hague and Fisk	"	"	6	44
529	Selby and St. Albans	"	"	6	46
530	Reaney and Forest	"	"	6	69
531	Reany and Cypress	"	"	6	76
532	Reaney and Earl	"	"	6	78
533	Irvine Park, North Side	Low	"	4	45
534	Irvine Park, South Side	"	"	4	40
535	Marshall and Victoria	High	"	12	46
536	Marshall and Fisk	"	"	12	48
537	Marshall and Miller	"	"	12	44
538	Marshall and Grotto	"	"	12	45
539	Earl and Minnehaha	"	"	12	80
540	Earl and Beech	"	"	12	80
541	Reaney and Frank	"	"	6	75
542	Laurel and Dale, N. W. C.	"	"	6	50
543	Laurel and St. Albans	"	"	6	48
544	Laurel and Grotto	"	"	6	46
545	Laurel and Miller	"	"	6	44
546	Garfield and Prairie	Low	"	6	35
547	Banfil and Smith Avenue	"	"	4	40
548	Carroll and Dale	High	"	6	35
549	Fuller and Marion	"	"	6	76
550	Fuller and Jay	"	"	6	75
551	Fuller and Farrington	"	"	6	75
552	Fuller and Virginia	"	"	6	74
553	Summit Place and St. Anthony	"	"	6	78
554	Cedar and Viola	"	"	6	55

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pressure at hydrant.
695	Margaret and Greenbrier	High	Single	6	62
696	Hoffman and Clermont	"	"	6	95
697	Cherry, 260 feet south of Hoffman	"	"	6	100
698	Ramsey and Western	"	"	6	60
699	Oakland and Ramsey	"	"	6	90
700	Fourth and Arcade	"	"	6	53
701	Western and Milwaukee Short line	Low	"	6	30
702	Goodrich, 750 feet east of Dale	High	"	6	45
703	Dale and Goodrich	"	"	12	50
704	Sixth, 500 west of Maria	"	"	6	90
705	Ninth and Olive	Low	"	6	42
706	Ninth and Neill	"	"	4	45
707	Sixth and Hope	High	"	6	60
708	Martin and Kent	"	"	6	45
709	Jackson and Valley	"	"	6	56
710	Martin and Mackubin	"	"	6	44
711	Greenbrier and North	"	"	12	65
712	Greenbrier and Maury	"	"	12	64
713	Sherburne and Park	"	"	6	71
714	Third and Jackson, N. W. C.	Low	Double	6	50
715	St. Anthony and Dale	High	Single	6	39
716	St. Anthony and Kent	"	"	6	45
717	Arcade and Minnehaha	"	"	12	65
718	St. Anthony and Mackubin	"	"	6	50
719	St. Anthony and Arundel	"	"	6	52
720	St. Anthony and Virginia	"	"	6	60
721	St. Anthony and Farrington	"	"	6	64
722	Wabasha and Park	"	"	4	76
723	St. Anthony and Jay	"	"	6	68
724	St. Anthony and Louis	"	"	6	68
725	St. Anthony and Ravoux	"	"	6	68
726	Sherburne and Brewster	"	"	6	64
727	Brewster and University	"	"	6	67
728	Prairie and Western	Low	"	6	35
729	Martin and Virginia	High	"	6	60
730	Martin and Farrington	"	"	6	62
731	Pennsylvania and L'Orient	Low	"	6	35
732	Martin and Jay	High	"	6	66
733	Martin and Louis	"	"	6	67
734	Glencoe and L'Orient	Low	"	6	32
735	Glencoe and Columbia	"	"	6	30
736	Arcade and Wells	High	"	12	73
737	Arcade and York	"	"	12	68
738	Arcade and Sims	"	"	12	64
739	Arcade and Case	"	"	12	64
740	Arcade and Jenks	"	"	12	63
741	Arcade and Lawson	"	"	12	62
742	Arcade and Cook	"	"	12	60
743	Arcade and Magnolia	"	"	12	60
744	Arcade, in front of Bohn Manufacturing Co.	"	"	12	78
745	Fauquier and Weide	"	"	6	76
746	Reaney and Weide	"	"	6	75
747	Reaney and Arcade	"	"	6	70
748	Edmund and Gaultier	"	"	6	73
749	Edmund and Elfelt	"	"	6	72
750	Edmund and Farrington	"	"	6	65
751	Edmund and Virginia	"	"	6	65
752	Edmund and Western	"	"	6	68
753	Como and Thomas	"	"	20	74
754	Como and Claghorn	"	"	20	74
755	Como and Lafond	"	"	20	74
756	Como and Gaultier	"	"	20	75
757	Aurora and Marion	"	"	6	69
758	Aurora and Jay	"	"	6	69
759	Aurora and Farrington	"	"	6	62
760	Preble and Minnehaha	Low	"	6	20
761	Payne and Beaumont	"	"	6	23
762	Thomas and Arundel	High	"	6	60
763	Thomas and Mackubin	"	"	6	60
764	Conway and Arcade	"	"	6	68

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pressure at hydrant.
765	Conway and Forest	High	Single	6	69
766	Thomas and Kent	"	"	6	65
767	Thomas and Dale	"	"	6	50
768	Francis and Arcade	"	"	6	58
769	River and Maria	"	"	4	87
770	Duke and Jefferson	Low	"	6	40
771	Duke and Cascade	"	"	6	45
772	Blair and Arundel	High	"	6	65
773	Blair and Mackubin	"	"	6	65
774	Blair and Kent	"	"	6	60
775	Blair and Dale	"	"	6	65
776	Iglehart and Dale	"	"	6	42
777	Fairfield and Starkey	Low	"	6	64
778	Fairfield and Custer	"	"	6	64
779	Jackson and Winter	High	"	12	70
780	Jackson and Arch	"	"	12	73
781	Jackson and Robert	"	"	12	70
782	Fairfield and Hubert	Low	"	6	64
783	Fairfield and Robert	"	"	6	63
784	Fairfield and Eaton	"	"	6	64
785	Fairfield and Eva	"	"	6	65
786	Fairfield and Robertson	"	"	6	65
787	Fairfield and State	"	"	6	66
788	Como and Elfelt	High	"	20	75
789	Como and Van Buren	"	"	20	75
790	Como and Minnehaha	"	"	20	73
791	Como and Virginia	"	"	20	71
792	Como and Western	"	"	20	70
793	Indiana, between Dakota and Starkey	Low	"	12	64
794	Front and Dale	High	"	12	60
795	Front and Kent	"	"	12	68
796	Front and Mackubin	"	"	12	71
797	Front and Arundel	"	"	12	70
798	Front and Western	"	"	12	63
799	Randolph and Bay	Low	"	12	35
800	Randolph and View	"	"	12	33
801	Front and Hand	High	"	12	69
802	Front and Farrington	"	"	12	60
803	Front and Matilde	"	"	12	64
804	Front and Gaultier	"	"	12	68
805	Fillmore and State	Low	"	6	66
806	Front and Marion	High	"	12	72
807	Front and Woodbridge	"	"	12	75
808	Front and Albemarle	"	"	12	74
809	Front and Rice	"	"	12	75
810	Lincoln and Victoria	"	"	6	44
811	Lincoln and Milton	"	"	6	46
812	Grand and Milton	"	"	6	45
813	Hague and Victoria	"	"	6	46
814	Dousman and Yankee	Low	"	6	32
815	Indiana and State	"	"	16	66
816	Indiana and Robertson	"	"	16	66
817	Indiana and Eva	"	"	16	65
818	Eaton and Indiana	"	"	16	64
819	Indiana and Robert	"	"	16	64
820	Indiana and Hubert	"	"	16	64
821	Indiana and Custer	"	"	16	64
822	Indiana and Starkey	"	"	16	64
823	Milwaukee freight yard	"	"	16	65
824	Summit and Minnesota	"	"	6	25
825	Dakota and Wood	"	"	6	60
826	Dakota and Colorado	"	"	6	55
827	Dakota and Delos	"	"	6	50
828	Isabel and State	"	"	12	50
829	Isabel and Greenwood	"	"	12	48
830	Isabel and Clinton	"	"	12	49
831	Isabel and Robert	"	"	12	50
832	Isabel and Livingston	"	"	12	50
833	Isabel and Starkey	"	"	12	50

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
555	Cedar and Como	High	Single	6	56
556	Viola and Jackson	"	"	6	58
557	Seventh and Frank, N. W. C.	"	"	16	83
558	Seventh and Frank, N. E. C.	"	"	16	83
559	Seventh and Duluth	"	"	16	81
560	Rice and Lafond	"	"	12	75
561	Rice and Arch	"	"	12	75
562	Rice and Pennsylvania	"	"	12	75
563	Rondo and Ravoux	"	"	6	78
564	Rondo and Summit Place	"	"	6	78
565	Williams and Olive	"	"	6	82
566	Olive and Pennsylvania	"	"	6	80
567	Rondo and Louis	"	"	6	77
568	Rondo and Farrington	"	"	6	75
569	Ninth and Smith Avenue	Low	"	6	20
570	Franklin and Sixth	"	"	4	30
571	Rondo and Virginia	High	"	6	74
572	Mendota and Beech	"	"	12	70
573	Kittson and Fourth	Low	"	6	65
574	Valley and Warren	High	"	16	65
575	Robert and Valley	"	"	6	60
576	Mendota and Dawson	"	"	12	61
577	Mendota and Francis	"	"	12	61
578	Mendota and East Fourth	"	"	12	66
579	Mt. Airy and Broadway	"	"	6	70
580	Fourth and Neill	Low	"	12	65
581	Fourth and Willius	"	"	12	65
582	Fourth and Locust	"	"	12	65
583	Mendota and Freemont	High	"	12	68
584	Mendota and Conway	"	"	12	69
585	Euclid and Forest	"	"	6	70
586	Euclid and Mendota	"	"	6	69
587	Third and Cypre-s	"	"	6	68
588	Third and Forest	"	"	6	68
589	Third and Mendota	"	"	6	69
590	Third and Arcade	"	"	6	67
591	Hudson and Mendota	"	"	12	66
592	Mt. Airy and Linden	"	"	6	60
593	Mt. Airy and Warren	"	"	6	50
594	Maple and Euclid	"	"	6	68
595	Mt. Airy and Robert	"	"	6	57
596	Webster and Seventh	Low	"	6	30
597	Maple and Ravine	High	"	6	69
598	Fourth and Broadway, N. E. C.	Low	"	12	58
599	Maple and Conway	High	"	6	69
600	Viola and Brewster	"	"	6	58
601	Maple and Fourth	"	"	6	65
602	Viola and Park	"	"	6	75
603	Maple and Sixth	"	"	6	69
604	Margaret and Arcade	"	"	6	60
605	Margaret and Mendota	"	"	6	70
606	Ellen and Marion	"	"	6	75
607	Granite and Courtland	Low	"	6	8
608	Granite and Agate	"	"	6	13
609	Granite and Beaver	"	"	6	20
610	Margaret and Forest	High	"	6	68
611	Ellen and Gaultier	"	"	6	76
612	Ellen and Farrington	"	"	6	75
613	Ellen and Virginia	"	"	6	75
614	Margaret and Cypress	"	"	6	65
615	Margaret and Earl	"	"	6	80
616	Mississippi and Case	Low	"	6	30
617	Mississippi and Jenks	"	"	6	30
618	Mississippi and Lawson	"	"	6	28
619	Mississippi and Cook	"	"	6	28
620	Mississippi and Magnolia	"	"	6	23
621	Mississippi and Jessamine	"	"	6	25
622	Robert and Thirteenth	"	"	6	26
623	Acker and Buffalo	"	"	6	14
624	Acker and Elk	"	"	6	13

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pressure at hydrant.
625	Acker and Courtland	Low	Single	6	13
626	University and Mackubin	High	"	12	72
627	University and Kent	"	"	12	70
628	University and Dale	"	"	12	68
629	Central Avenue north of Central Park	"	"	6	80
630	Central Drive, east, and Summit Avenue	"	"	4	90
631	Genesee and Buffalo	Low	"	6	13
632	Ellen and Western	High	"	6	75
633	Ellen and Arundel	"	"	6	74
634	Ellen and Mackubin	"	"	6	73
635	Ellen and Kent	"	"	6	70
636	Aurora and Virginia	"	"	6	75
637	Fourteenth and Robert	Low	"	6	24
638	Payne and Minnehaha	"	"	6	18
639	Reaney and Payne	"	"	6	14
640	Reaney and Edgerton	"	"	6	12
641	Eagle and Spring	"	"	6	66
642	Charles and Marion	High	"	6	76
643	Charles and Gaultier	"	"	6	76
644	Charles and Elfelt	"	"	6	75
645	Charles and Farrington	"	"	6	75
646	Charles and Virginia	"	"	6	75
647	Charles and Western	"	"	6	75
648	Virginia and Marshall	"	"	4	45
649	Decatur and Bedford	Low	"	6	23
650	Decatur and Edgerton	"	"	6	23
651	Beaumont and Preble	"	"	6	23
652	Oakland and Lincoln	High	"	6	50
653	Oakland and Floral	"	"	6	64
654	Oakland and Lawton	"	"	6	74
655	Oakland and Western	"	"	6	80
656	Dakota, at end of bridge	Low	"	6	63
657	Dakota and Fillmore	"	"	6	64
658	Dakota and Fairfield	"	"	6	64
659	Dakota and Indiana	"	"	6	64
660	Dakota and Chicago	"	"	6	64
661	Dakota and Channel	"	"	6	64
662	Toronto and Seventh	"	"	6	32
663	James and Seventh	"	"	6	33
664	Randolph and Seventh	"	"	6	30
665	Warsaw and Seventh	"	"	6	30
666	Audubon and Seventh	"	"	6	29
667	Summit and St. Albans	High	"	12	48
668	Carroll and Victoria	"	"	6	56
669	Carroll and Milton	"	"	6	48
670	Western and St. Clair	Low	"	6	29
671	Armstrong and Seventh	"	"	6	30
672	Bay and Seventh	"	"	6	30
673	Lee and Seventh	"	"	6	30
674	Jefferson and Oneida	"	"	12	40
675	Jefferson and Western	"	"	12	39
676	Webster, 300 feet north of Jefferson	"	"	6	38
677	Maria and Plum	High	"	6	94
678	Maria and Cherry	"	"	6	92
679	Robert, 230 feet north of University	"	"	6	70
680	Grotto and Summit	"	"	6	45
681	Grotto and Portland	"	"	6	44
682	Hoffman and Cherry	"	"	6	94
683	Minnesota and Seventh, S. E. C.	Low	"	6	40
684	Dayton and Victoria	High	"	6	46
685	Minnesota and Fourth, S. E. C.	Low	Double	6	42
686	Selby and Grotto	High	Single	6	44
687	Selby and Miller	"	"	6	44
688	Selby and Fisk	"	"	6	45
689	Selby and Victoria	"	"	6	46
690	Hoffman and McLean	"	"	6	90
691	Hoffman and Lizzie	"	"	6	92
692	Hoffman and River	"	"	6	96
693	Portland and Avon	"	"	6	44
694	Margaret and Hope	"	"	6	58

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pr hyd
974	Edmund and Dale	High	Single	6	
975	Case and Forest	"	"	12	
976	Case and Mendota	"	"	12	
977	Colborne and St. Clair	Low	"	6	
978	Case and Weide	High	"	12	
979	Case and Walsh	"	"	12	
980	Aurora and Dale	"	"	6	
981	Fuller and Dale	"	"	6	
982	Rondo and Dale	"	"	6	
983	Payne and Case	"	"	6	
984	Payne and Jenks	"	"	6	
985	Payne and Lawson	"	"	6	
986	Cook and Payne	"	"	6	
987	Case and Greenbrier	"	"	12	
988	Case and Edgerton	"	"	12	
989	Martin and Dale	"	"	6	
990	Colborne and Superior	Low	"	6	
991	Colborne and Michigan	"	"	6	
992	Case and Jessie	High	"	12	
993	Case and Bradley	"	"	12	
994	Case and Burr	"	"	12	
995	Case and DeSoto	"	"	12	
996	Case and Arkwright	"	"	12	
997	Case and McMenemy	"	"	12	
998	Burr and Jenks	"	"	6	
999	Burr and York	"	"	6	
1000	Burr and Whitall	"	"	6	
1001	Burr and Omaha R. R.	"	"	6	
1002	Charles and Mackubin	"	"	6	
1003	Charles and Kent	"	"	6	
1004	Charles and Dale	"	"	6	
1005	Charles and St. Albans	"	"	6	
1006	Edmund and St. Albans	"	"	6	
1007	Edmund and Grotto	"	"	6	
1008	Lafond and St. Albans	"	"	6	
1009	Lafond and Grotto	"	"	6	
1010	Van Buren and Dale	"	"	6	
1011	Minnehaha and Dale	"	"	6	
1012	Payne and Omaha R. R	"	"	6	
1013	Payne and Ross	"	"	6	
1014	Payne and Whitall	"	"	6	
1015	Payne and Wells	"	"	6	
1016	York and Edgerton	"	"	6	
1017	York and Payne	"	"	6	
1018	York and Greenbrier	"	"	6	
1019	Sims and Greenbrier	"	"	6	
1020	Sims and Payne	"	"	6	
1021	Tuscarora and West Seventh	Low	"	6	
1022	Sims and Weide	High	"	6	
1023	Sims and Walsh	"	"	6	
1024	York and Weide	"	"	6	
1025	York and Walsh	"	"	6	
1026	University and St. Albans	"	"	20	
1027	University and Grotto	"	"	20	
1028	University and Avon	"	"	20	
1029	University and Victoria	"	"	20	
1030	York and Mendota	"	"	6	
1031	York and Forest	"	"	6	
1032	Forest and Wells	"	"	6	
1033	Forest and Sims	"	"	6	
1034	Beech and Cypress	"	"	6	
1035	University and Milton	"	"	20	
1036	University and Chatsworth	"	"	20	
1037	University and Oxford	"	"	20	
1038	University and Lexington	"	"	20	
1039	Park and Aurora	"	"	6	
1040	Daly and James	Low	"	6	
1041	Daly and Palace	"	"	6	
1042	Daly and Jefferson	"	"	6	
1043	Third and Pine	"	Double	12	

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pressure at hydrant.
1044	Third and Olive	Low	Double	12	65
1045	Third and John	"	"	12	65
1046	Laurel and Fisk	High	Single	6	36
1047	Summit Court	"	"	6	35
1048	Third and Broadway, N. E. C.	Low	Double	12	65
1049	Third and Wacouta, N. E. C.	"	"	12	63
1050	Sibley and Third, N. E. C.	"	"	12	60
1051	Goodrich and St. Albans	High	Single	6	42
1052	Goodrich and Grotto	"	"	6	37
1053	Goodrich and Avon	"	"	6	36
1054	Goodrich and Victoria	"	"	6	36
1055	State and Morrison	Low	"	16	61
1056	State and Champlain	"	"	16	60
1057	State and Eaton	"	"	16	56
1058	State and Delos	"	"	16	52
1059	Mound and Hastings	High	"	12	63
1060	Mound, 300 feet S. of Hastings	"	"	12	60
1061	Mound and McLean	"	"	12	55
1062	Mound and Lizzie	"	"	12	52
1063	Garfield and Lisbon	Low	"	6	33
1064	Fairmount and Dale	High	"	12	40
1065	Kenwood Park, N. side	"	"	6	44
1066	Kenwood Park, S. side	"	"	6	43
1067	Pine and Pennsylvania	"	"	6	56
1068	Fairmount and St. Albans	"	"	6	46
1069	Fairmount and Grotto	"	"	6	38
1070	Seventh and Wabasha, N. E. C.	Low	Double	16	32
1071	Seventh and Cedar, N. E. C	"	"	16	38
1072	Seventh and Minnesota, N. E. C.	"	"	16	40
1073	Seventh and Robert, N. E. C.	"	"	16	41
1074	University and Griggs	High	Single	20	42
1075	University and Hamline	"	"	20	40
1076	University and Pascal	"	"	20	40
1077	University and Snelling	"	"	20	40
1078	University and Aldine	"	"	20	42
1079	University and Wheeler	"	"	20	43
1080	University and Fairview	"	"	20	44
1081	University and Prior, N. E. C.	"	"	20	45
1082	Bremer and University	"	"	6	45
1083	Bremer and Waltham	"	"	6	39
1084	Feronia and Bremer	"	"	6	44
1085	Feronia and Lynnhurst, west	"	"	6	44
1086	Lynnhurst west, and Oakley	"	"	6	49
1087	Lynnhurst west, and University	"	"	6	45
1088	Lynnhurst east, 300 feet north of Feronia	"	"	6	49
1089	Oakley and Prior	"	"	6	45
1090	Feronia and Fairview	"	"	6	44
1091	Waltham, 300 feet east of Prior	"	"	4	44
1092	Milwaukee Avenue and Merriam Place	"	"	6	45
1093	Milwaukee Avenue and Astoria	"	"	6	40
1094	St. Anthony Avenue and Ferdinand	"	"	6	40
1095	St. Anthony Avenue and Howell	"	"	6	40
1096	St. Anthony Avenue and Prior	"	"	6	42
1097	St. Anthony Avenue and Merriam Place	"	"	6	41
1098	St. Anthony and Astoria	"	"	6	40
1099	St. Anthony and Cleveland	"	"	6	40
1100	Rondo and Laura	"	"	6	38
1101	Rondo and Ferdinand	"	"	6	39
1102	Rondo and Howell	"	"	6	40
1103	Rondo and Prior	"	"	6	42
1104	Rondo and Terrace Park Avenue	"	"	6	42
1105	Carroll and Fairview	"	"	6	41
1106	Carroll and Laura	"	"	6	42
1107	Carroll and Ferdinand	"	"	6	42
1108	Carroll and Howell	"	"	6	42
1109	Carroll and Prior	"	"	6	44
1110	Carroll and Moore	"	"	6	44
1111	Carroll and Wilder	"	"	6	43
1112	Carroll and Cleveland	"	"	6	43
1113	Iglehart and Cleveland	"	"	6	47

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pressure at hydrant.
834	Isabel and Dakota	Low	Single	12	48
835	Isabel and Goff	"	"	12	30
836	Isabel and Hall	"	"	12	24
837	Isabel and Stryker	"	"	12	23
838	Isabel and Winslow	"	"	12	24
839	Concord and Bancroft	"	"	12	50
840	Concord and Anita	"	"	12	50
841	Concord and Ada	"	"	12	49
842	Concord and State	"	"	12	48
843	Concord and Robie	"	"	12	49
844	Concord and Winifred	"	"	12	50
845	Concord and Congress	"	"	12	50
846	Concord and Onega	"	"	12	50
847	John and Williams	"	"	6	38
848	Western and Superior	"	"	6	35
849	Robert and Fillmore	"	"	6	60
850	Congress and Robert	"	"	6	50
851	Congress and Clinton	"	"	6	50
852	Congress and Greenwood	"	"	6	49
853	Congress and State, N. W. C.	"	"	6	48
854	Minnehaha and Edgerton	"	"	6	18
855	Robie and State	"	"	6	48
856	Robie and Ada	"	"	6	50
857	Robie and Anita	"	"	6	51
858	Robie and Bancroft	"	"	6	53
859	Winifred and State	"	"	6	48
860	Winifred and Ada	"	"	6	48
861	Winifred and Anita	"	"	6	48
862	Winifred and Bancroft	"	"	6	49
863	Congress and State, N. E. C.	"	"	6	48
864	Congress and Ada	"	"	6	49
865	Congress and Anita	"	"	6	48
866	Congress and Dunedin Terrace	"	"	6	49
867	Congress and Bancroft	"	"	6	48
868	Hoffman and Short	High	"	6	92
869	Sixth and Washington	Low	"	6	31
870	Lee and Drake	"	"	6	40
871	Lee and Warsaw	"	"	6	34
872	Lee and Bay	"	"	6	31
873	Western and Banfil	"	"	6	30
874	VonMinden and Dousman	"	"	6	31
875	VonMinden and Ann	"	"	6	31
876	Minnehaha and Bradley	"	"	6	10
877	Fillmore and Starkey	"	"	6	64
878	Brewster and Como	High	"	6	41
879	Mt. Airy and L'Orient, N. W. C.	"	"	6	81
880	Ellen and Dale	"	"	6	50
881	Fillmore and Custer	Low	"	6	64
882	Fillmore and Hubert	"	"	6	62
883	Fillmore and Eaton	"	"	6	62
884	Fillmore and Eva	"	"	6	64
885	Fillmore and Robertson	"	"	6	65
886	Woodward and Burr	"	"	4	33
887	Dakota and Congress	"	"	6	47
888	Dakota and Goff	"	"	6	45
889	Congress and Onega	"	"	6	49
890	Reaney and Walsh	High	"	6	75
891	Reaney and Greenbrier	"	"	6	75
892	Euclid and Cypress	"	"	6	50
893	Euclid and Earl	"	"	6	47
894	Livingston and Wood	Low	"	6	53
895	Colorado and Parnell	"	"	6	50
896	Colorado and Livingston	"	"	6	50
897	Colorado and South Robert	"	"	6	50
898	Colorado and Clinton	"	"	6	50
899	South Robert and Wood	"	"	6	53
900	Carroll and St. Albans	High	"	6	37
901	Carroll and Grotto	"	"	6	36
902	Carroll and Miller	"	"	6	39
903	Carroll and Fisk	"	"	6	45

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamers.	Size of pipe.	Pressure at hydrant.
904	Concord and Brown	Low	Single	12	50
905	Concord and Andrew	"	"	12	50
906	Iglehart and St. Albans	High	"	6	37
907	Iglehart and Grotto	"	"	6	35
908	Iglehart and Miller	"	"	6	38
909	Iglehart and Fisk	"	"	6	43
910	Iglehart and Victoria	"	"	6	41
911	Winifred and Clinton	Low	"	6	49
912	Winifred and Greenwood	"	"	6	50
913	Lafayette and Woodward	"	"	16	35
914	Isabel and Bidwell	"	"	12	24
915	Isabel and Bellows	"	"	12	24
916	Summit and Avon	High	"	12	35
917	Summit and Victoria	"	"	12	35
918	Winifred and Brown	Low	"	6	47
919	Winifred and Andrew	"	"	6	49
920	Ross and Frank	High	"	6	66
921	Ross and Duluth	"	"	6	66
922	Ross and Atlantic	"	"	6	66
923	Summit and Milton	"	"	12	35
924	Summit and Chatsworth	"	"	12	35
925	Delos and Greenwood	Low	"	6	48
926	Delos and Clinton	"	"	6	49
927	Delos and South Robert	"	"	6	50
928	Western and Sturgis	"	"	6	35
929	Summit and Oxford	High	"	12	30
930	Summit and Lexington	"	"	12	35
931	Beech and Frank	"	"	6	50
932	Beech and Duluth	"	"	6	51
933	Delos and Starkey	Low	"	6	54
934	Delos and Livingston	"	"	6	50
935	Jackson and Fifth, northeast corner	"	Double	12	46
936	Jackson and Sixth, southeast corner	"	"	12	45
937	Jackson and Seventh, southeast corner	"	"	12	42
938	Jackson and Eighth, southeast corner	"	"	12	40
939	Jackson and Ninth, southeast corner	"	Single	12	37
940	Summit and Dunlap	High	"	12	30
941	Summit and Griggs	"	"	12	30
942	Summit and Milwaukee railroad	"	"	12	30
943	Beech and Forrest	"	"	6	54
944	South Robert and Chicago	Low	"	6	64
945	South Robert and Plato	"	"	6	65
946	South Robert, 250 feet south of Plato	"	"	6	62
947	South Robert and Morrison	"	"	6	59
948	South Robert and railroad bridge	"	"	6	56
949	Marion and Thomas	High	"	6	60
950	Marion and Lafond	"	"	6	61
951	State and Chicago	Low	"	16	65
952	State and Plato	"	"	16	64
953	State and Florida	"	"	16	63
954	State and Utah	"	"	16	62
955	Van Buren and Western	High	"	6	59
956	VanBuren and Arundel	"	"	6	58
957	Isabel and Charlton	Low	"	6	26
958	West Seventh and Ramsey, northeast corner	"	Double	20	32
959	West Seventh and Walnut, northeast corner	"	"	20	37
960	West Seventh and Chestnut, southeast corner	"	"	20	35
961	Lafond and Western	High	Single	6	58
962	Lafond and Arundel	"	"	6	58
963	Lafond and Mackubin	"	"	6	58
964	Randolph and Fulton	Low	"	12	33
965	Randolph and Clifton	"	"	12	33
966	Randolph and Victoria	"	"	12	33
967	Randolph and Milton	"	"	12	31
968	Lafond and Kent	High	"	6	55
969	Lafond and Dale	"	"	6	52
970	Eagle and West Seventh	Low	Double	6	56
971	Edmund and Arundel	High	Single	6	57
972	Edmund and Mackubin	"	"	6	57
973	Edmund and Kent	"	"	6	54

LIST OF HYDRANTS—*Concluded.*

No.	Location.	Service.	Double or single steamers.	Size of pipe.	Pre hy
1114	Iglehart and Wilder	High	Single	6	
1115	Iglehart and Moore	"	"	6	
1116	Iglehart and Prior	"	"	6	
1117	Iglehart and Howell	"	"	6	
1118	Iglehart and Laura	"	"	6	
1119	Wilder and Carroll	"	"	6	
1120	Wilder and Rondo	"	"	6	
1121	Fauquier and Frank	"	"	6	
1122	Plum and Hoffman	"	"	6	
1123	Freemont and Forest	"	"	6	
1124	Prior and University, S. E. C.	"	"	12	
1125	Prior and Feronia	"	"	12	
1126	Sibley and Fourth, S. W. C.	Low	Double	6	
1127	Prior and Marshall	High	Single	12	
1128	Chicago and Starkey	Low	"	6	
1129	Chicago and Custer	"	"	6	
1130	Emma and Railroad	"	"	4	
1131	Roble and Brown	"	"	6	
1132	Rondo and Kent	High	"	6	
1133	Short and Maria	"	"	6	
1134	Ravine, 325 feet west of Maria	"	"	4	

Number of fire hydrants placed this year on High Service	177
Number of fire hydrants placed this year on Low Service	89
Total number placed this year	266
Total number placed to date on High Service	608
Total number placed to date on Low Service	526
Grand total	1134 of which 32 on Low service are double stea

S. S. stands for single steamer.
D. S. stands for double steamer.
Only two of the old Holly hydrants remain in use, the balance are Mathew's.

LIST OF STREET SPRINKLING HYDRANTS.

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.
1	Sixth and Sibley	10 feet	Holly
2	Fifth and Wacouta	7½ "	"
3	Wacouta and Third	3 "	"
4	Fort and Third	4 "	"
5	Third and Jackson	5 "	"
6	Minnesota and Third	5 "	Stand-pipe
7	Fifth and Robert	6 "	Holly
8	Robert and Seventh	5 "	"
9	Wacouta and Seventh	7 "	"
10	Ninth and Cedar	8 "	"
11	Eighth and Broadway	6 "	"
12	John and Seventh	7 "	"
13	Walnut and Seventh	5 "	"
14	Kittson and Seventh	10 "	"
15	Ninth and St. Peter	5 "	"
16	Pine and Tenth	8½ "	"
17	Pine and Grove	8 "	"
18	Waverly and Westminister	3½ "	"
19	Leech and Seventh	In tunnel	"
20	Broadway and Fourth	7 feet	"
21	Cedar and Seventh	8 "	Stand-pipe
22	College and Wabasha	8 "	"
23	College and Tenth	8 " north 7 " east	" "
24	Pleasant and Third	35 " south 7 " west	" "
25	St. Peter and Third	In tunnel	Holly
26	Franklin and Fourth	"	"
27	Goodrich and Seventh	16 feet	"
28	Eleventh and Robert	5 "	"
29	Mt. Airy and Mississippi	6 "	Stand-pipe
30	Burr and Collins	11 "	Holly
31	Bradley and Woodward	7 "	"
32	Martin and Western	10½ "	"
33	St. Albans and Portland	9 "	Stand-pipe
34	Portland and Summit	31 "	Holly
35	Laurel and Farrington	6 "	Stand-pipe
36	St. Clair and Seventh	10½ "	Holly
37	Ramsey and Pleasant	7½ "	"
38	Mackubin and Selby	28 "	Stand-pipe
39	Summit and Nelson	10 "	"
40	Mackubin and Summit	14 "	Holly
41	Dale and Marshall	8 "	"
42	Dale and Ashland	28 "	"
43	Dale and Grand	8 "	"
44	Marshall and Western	10 "	"
45	Rondo and Rice	10 "	"
46	Central and Wabasha	7½ "	"
47	Mackubin and University	10 "	"
48	University and Rice	8 " south 6 " west	Standpipe
49	Bates and Seventh	9 "	Holly
50	Hudson and Maria	10 "	"
51	Mendota and Fauquier	8 "	"
52	Oneida and Seventh	8 "	"
53	Third and Bates	7 "	"
54	Fifth and Maria	7½ "	"
55	Chestnut and Franklin	8½ "	"
56	Twelfth and Jackson	37 "	"
57	Wacouta and Tenth	5 "	"
58	Arundel and Holly	6 " east 29 " south	Stand-pipe
59	Sherman and Smith	9 "	Holly
60	Grant and Aurora	27½ "	"
61	Sixth and Wabasha	In tunnel	Stand-pipe
62	Eichenwald and Seventh	10 feet	Holly
63	Sinnen and Seventh	13 "	"
64	Reaney and Seventh	8 "	"
65	Earl and Seventh	8 "	"

LIST OF STREET SPRINKLING HYDRANTS—*Continued.*

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.
66	Locust and Ninth	11 feet	Stand-pipe
67	Walnut and Summit	36 "	Holly
68	Ninth and Fort	8 "	"
69	Grove and Canada	5 "	"
70	Mendota and Seventh	11 "	"
71	Jackson and Fourteenth	8 "	"
72	John and Fourth	8 "	"
73	Maple and Conway	10 "	"
74	Farrington and Carroll	8 "	"
75	Topping and Como		
76	Viola and Grant	27½ "	"
77	Capitol and Western		
78	Acker and Mississippi	6 "	"
79	Payne and Minnehaha	7 "	"
80	Fairfield and Dakota	8½ "	Stand-pipe
81	Audubon and Seventh	8 "	Holly
82	Rice and Como	7½ "	"
83	Rice and St. P., M. & M. R. R.	6 "	"
84	Williams and Olive	2 "	"
85	Olmstead and Olive	4 " east 20 " north	"
86	Neill and Fifth	24 " east 20 " north	"
87	Canada and University	23 "	"
88	Warren and Valley	15 " east 20 " north	"
89	Gaultier and University	20 " east 34 " south	"
90	Virginia and University	16 " east 20 " north	"
91	Farrington and Nelson	26 " west	Stand-pipe
92	Oakland and Floral	7 "	Holly
93	Mackubin and Iglehart	8 "	"
94	Acker and Elk	6 "	"
95	Summit and Cedar	7 " south 12 " west	Stand-pipe
96	Iglehart and St. Peter	28 "	"
97	Ninth and Jackson	22 " north	"
98	Sherman and Exchange	7 "	"
99	Summit Place and Iglehart	24 "	"
100	Summit Place and Martin	5½ "	"
101	Jay and Fuller	8 "	"
102	Dale and University	8 "	"
103	St. Albans and Hague	7 "	"
104	Hoffman and Sixth	8 "	"
105	Hoffman and Cherry	10 "	"
106	River and Hoffman	10 "	"
107	University and Snelling	13 "	"
108	Carroll and Dale	5 "	"
109	Grand and Floral	30 "	"
110	Dale and Selby	9 "	"
111	Farrington and Ellen	7 "	"
112	Mackubin and Fuller	5 "	"
113	Mackubin and St. Anthony	9 "	"
114	Prairie and Garfield	10 "	"
115	Charles and Western	10 "	"
116	Marion and Charles	8 "	"
117	Granite and Mississippi	11 "	"
118	Sixth and Broadway	3 "	"
119	Minnehaha and Burr	23 " north 3 " west	"
120	Bedford and Decatur	30 "	"
121	Burr and Hopkins	6 "	"
122	Maple and Hudson	9 "	"
123	Goodrich and Richmond	10 "	"
124	Duke and Seventh	7 "	"
125	Earl and Minnehaha	7 "	Holly
126	Arcade and Reaney	7 "	Stand-pipe
127	Otsego and Lafayette	6 "	"
128	Cedar and Fifth	7 "	"

LIST OF STREET SPRINKLING HYDRANTS—*Concluded.*

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.
129	Grotto and Dayton	10 feet	Stand-pipe
130	Grove and Monroe Place	5 "	"
131	Fauquier and Weide	9 "	"
132	Arundel and Rondo	9 "	"
133	Arcade and York	7 "	"
134	Broadway and Thirteenth	6 "	"
135	Robert and University	9 "	"
136	Como and Lafond	10 "	"
137	Congress and Robert	8 "	"
138	Lee and Bay	9 "	"
139	Fillmore and Robert	7 "	"
140	Grotto and Grand	6 "	"
141	Robert and Wood	9 "	"
142	Anita and Concord	7 "	"
143	Robie and Concord	37 "	"
144	Reaney and Greenbrier	8 "	"
145	Victoria and Summit	43 " south	"
146	Dakota, south of Channel	8 "	"
147	Isabel and Dakota	6 "	"
148	Chicago and Robert	8 "	"
149	Sherburne and Park	3 "	"
150	Virginia and Rondo	7 "	"
151	Front and Dale	5 "	"
152	Lafond and Western	8 "	"
153	Front and Rice	6 "	"
154	Kent and Laurel	6 "	"
155	Grotto and Holly	6 "	"
156	Western and Goodrich	8 "	"
157	Cook and Payne	7 "	"
158	York and Payne	6 "	"
159	University and Victoria	28 "	"
160	University and Lexington	12 "	"
161	Third and John	10 "	"
162	Tuscarora and Seventh	7 "	"

Hydrants..... 79
Stand-pipes..... 83

Total..... 162

No. placed this year..... 25

LOCATION OF VALVES (LOW SERVICE.)

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Acker	West line of Mississippi			1						
Alabama	East line of State			1						
Armstrong	East line of Seventh			1						
Audubon	East line of Seventh			1						
Banfil	East line of Seventh		1							
Bay	South line of Seventh			1						
Beaumont	East line of DeSoto			1						
Beaumont	East and west line of Bedford			2						
Becker Place	South line of Lafayette			1						
Bedford	North line of North			1						
Bedford	South line of Minnehaha			1						
Bradley	North line of Partridge			1						
Bradley	North line of Beaumont		1							
Broadway	On hydrant in Milwaukee freight yard		1							
Broadway	North and south line of Third M.H&B.O	1	1			2				
Broadway	North and South line of Seventh, M. & H		1	2		1		1		
Broadway	B. O. at Ninth			1						
Broadway	South line of Grove			2				1		
Broadway	North line of Thirteenth		1							
Bruno	South line of Lafayette			1						
Buffalo	North line of Acker			1						
Buffalo	South line of Granite			1						
Burr	South line of Hopkins			1						
Burr	South line of North			1						
Burr	North line of Collins			1						
Burr	North line of Beaumont			1						
Burr	South line of Fauquier			1						
Canada	North line of Ninth			1						
Canada	North and south line of Grove			2						
Cedar	North line of Third				1					
Cedar	B. O. at Sixth	1								
Cedar	North and south line of Seventh				2					
Cedar	B. O. at Eighth	1								
Cedar	South line of Tenth				1					
Cedar	North and south line of Twelfth			1			1			
Chestnut	North line of Franklin			1						
Chestnut	South line of Seventh			1						
Colborne	North line of Seventh			1						
Colborne	North line of St. Clair			1						
College	West line of Cedar			1						
College	West line of Wabasha			1						
College	West line of St. Peter			1						
College	West line of Tenth			1						
Collins	West line of Bedford			1						
Collins	East line of Lafayette			1						
Concord	South line of Isabel				1					
Concord	East and west line of State				2					
Concord	East line of Bancroft				1					
Congress	East and west line of State			2						
Congress	West line of Anita			1						
Congress	East line of Clinton			1						
Congress	East and west line of Concord.			1						
Congress	East line of Dakota			1						
Chicago	East and west line of Starkey			2						
Colorado	West line of Clinton			1						
Colorado	East line of Lexington			1						
Dakota	North and south line of Isabel			2						
Dakota	North line of Colorado			1						
Dakota	North line of Plato			1						
Dakota	North and south line of Indiana			2						
Decatur	East line of Bedford			1						
DeSota	South line of Collins			1						
Douglas	North and south line of Seventh			2						
Douglas	South line of Lisbon			1						
Duke	South line of Seventh			1						
Duke	South line of Jefferson			1						
Dousman	South line of Goodhue			1						
Dousman	North line of Von Minden			1						
Delos	West line of Clinton			1						
Delos	East line of Livingston			1						

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Delos	East and west line of Starkey			2						
Daly	West line of Seventh			1						
Eagle	South line of Seventh			1						
Eighth	112 feet east of Neill	1								
Eighth	East and west line of Locust		2							
Eighth	East and west line of Broadway		4							
Eighth	West line of Sibley		1							
Eighth	East and West line of Jackson		2							
Eighth	East line of Minnesota		1							
Eighth	East and west line of Cedar		2							
Eighth	East line of Wabasha		1							
Eleventh	East line of Broadway		2							
Eleventh	West line of Jackson			1						
Eleventh	West line of Robert			1						
Eleventh	East line of Cedar			1						
Elm	East line of Exchange		1							
Exchange	East and west line of St. Peter		2							
Exchange	South line of Ninth		1							
Exchange	North line of Seventh		1							
Exchange	North and south line of Third		2							
Exchange	South line of Eagle		1							
Exchange	South line of Chestnut		1							
Exchange	North line of Sherman		1							
Exchange	Center of Wilkin		1							
Edgerton	North line of Minnehaha			1						
Fairfield	South line of Dakota			1						
Fairfield	North and south line of Starkey			2						
Fairfield	South line of Hubert			1						
Fairfield	South line of Eaton			1						
Fairfield	North line of Eva			1						
Fairfield	South line of State			1						
Fauquier	East line of DeSoto				1					
Fifth	West line of Neill			1						
Fifth	West line of Willius			1						
Fifth	East line of John			1						
Fifth	West line of Broadway		1							
Fifth	West line of Rosabel		1							
Fifth	East line of Sibley		1							
Fifth	East and west line of Jackson		2							
Fifth	East line of Minnesota		1							
Fifth	East and west line of Cedar		2							
Fifth	East and west line of Wabasha		1	1						
Fifth	West line of St. Peter		1							
Fifth	West line of Washington		1							
Fifth	East line of Seventh		1							
Fifth	East and west line of Fort		2							
Fifth	East line of Smith avenue		1							
Forbes	North line of Ramsey			1						
Fort	North line of Third, M. H. B. O		2				1			
Fort	South line of Fifth on hydrant		1							
Fort	South line of Sixth on hydrant		1							
Fort	South line of Ninth, main and hydrant		1				1			
Fort	On hydrant between Ninth and Tenth		1							
Fourth	West line of Kittson				1					
Fourth	Blow off at Neill	1								
Fourth	West line of Locust				1					
Fourth	Blow off at John	1								
Fourth	East and west line of Broadway			1	1					
Fourth	West line of Rosabel			1						
Fourth	West line of Wakouta			1						
Fourth	East and west line of Jackson			2						
Fourth	East line of Minnesota			1						
Fourth	East and west line of Cedar			2						
Fourth	West line of Wabasha			1						
Fourth	West line of Market			1						
Fourth	East line of Franklin			1						
Fourteenth	West line of Canada			1						
Fourteenth	East line of Jackson			1						
Franklin	North line of Sherman		1							
Franklin	North line of Irvine Park		1							

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Franklin	North line of Third		1							
Franklin	North line of Fourth		1							
Franklin	North and south line of Seventh		2							
Franklin	South line of Ninth		1							
Fillmore	South line of State			1						
Fillmore	North line of Eva			1						
Fillmore	North line of South Robert			1						
Fillmore	South line of Hubert			1						
Fillmore	North and south line of Starkey			2						
Garfield	North line of Goodrich			1						
Genesee	West line of Mississippi			1						
Granite	West line of Mississippi			1						
Granite	East line of Agate			1						
Goodhue	East and west line of Seventh			2						
Goodrich	East and west line of Seventh, M. B. O.	1		1	1					
Grace	East line of Seventh			1						
Grove	West line of Lafayette			1						
Grove	W line & center Mississippi, M. H. & B. O.		2				2			
Grove	On hydrant west of Canada		1							
Grove	East line of Jackson						1			
Glencoe	West line of Mississippi			1						
Hopkins	West line of Bradley			1						
Hopkins	East line of DeSoto			1						
Indiana	North and south line of Starkey				1	1				
Indiana	South line of Eaton					1				
Indiana	South line of State					1				
Isabel	West line of State				1					
Isabel	East and west line of Starkey				2					
Isabel	West line of Winslow				1					
Jackson	North line of levee and levee M. B. O.	1	1							
Jackson	South line of Fourth				1					
Jackson	North and south line of Seventh				2					
Jackson	South line of Ninth				1					
Jackson	South line of Twelfth				1					
Jackson	North line of Grove			1						
Jackson	South line of Fourteenth			1						
Jefferson	West line of Seventh				1					
James	West and east line of Seventh			2						
Jessie	South line of Fauquier			1						
John	North line of Third			1						
John	North line of Fourth			1						
John	North line of Fifth			1						
John	North and south line of Seventh		1	1						
John	South line of Tenth		1							
John	North and south line of Grove		2							
John	North and south line of Olmsted			2						
Kittson	North line of Fourth			1						
Kittson	North line of Fifth			1						
Kittson	South line of Seventh			1						
Kentucky	East line of State			1						
Lafayette	North line of Woodward on hydrant		1							
Lafayette	North and south line of Bruno, M. & B. O.	1	1			2				
Lafayette	N. P. track blow off		1							
Lafayette	South line of Collins					1				
Lee ave	East line of Seventh			1						
Lee ave	West line of Warsaw			1						
Leech	North line of Goodrich			1						
Leech	North line of McBoal			1						
Leech	North line of Seventh			1						
Leech	15 feet south of north line of Ramsey			1						
Locust	North line of Seventh					1				
L'Orient	North line of Thirteenth			1						
L'Orient	South line of Mt. Airy			1						
L'Orient	North line of Glencoe			1						
Livingston	North line of Delos			1						
McBoal	West line of Wilkin			1						
McBoal	East line of Smith ave			1						
McBoal	East and west line of Seventh			2						
Magnolia	Center of Mississippi			1						
Market	North line of Third		1							

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Minnehaha	East line of Jessie			1						
Minnesota	South line of Fifth			1						
Minnesota	North line of Third			1						
Minnesota	North and south line of Seventh		1	1						
Minnesota	South line of Tenth		1							
Minnesota	South line of Eleventh		1							
Minnesota	South line of Twelfth		1							
Mississippi	North line of Grove, M. & B. O.			3					1	
Mississippi	North line of Nash			1						
Mississippi	North line of Glencoe			1						
Mississippi	South line of Minnehaha			2						
Mississippi	North line of Manitoba R. R. blow off			1						
Mississippi	South of Acker			2					1	
Mississippi	South of Cayuga			2						
Mississippi	North of N. P. R. R., M. & B. O.			3						
Mississippi	North of Magnolia			2					1	
Mt. Airy	West line of Mississippi			1						
Mt. Ida	West line of DeSoto			1						
Michigan	West line of Seventh			1						
Nash	East and west line of Mississippi			4						
Neill	North line of Seventh		1							
Ninth	West line of Neill		1							
Ninth	East and west line of Locust		1	1						
Ninth	East and west line of Broadway			4						
Ninth	West line of Sibley			1						
Ninth	East and west line of Jackson			2						
Ninth	East line of Minnesota			1					1	
Ninth	East and west line of Cedar			2						
Ninth	East line of Wabasha		1							
Ninth	West line of St. Peter			1						
Ninth	East and west line of Fort			2						
Norris	West line of Canada		1							
Norris	East line of Temperance		1							
North	West line of Bradley			1						
Olive	South line of Seventh		1							
Olive	North and south line of Grove		2							
Olive	South line of Olmsted		1							
Olive	North line of Olmsted, dividing between high and low service			1						
Oneida	South line of Seventh			1						
Otsego	North line of Lafayette			1						
Partridge	West line of Bradley		1							
Pine	North line of Ninth		1							
Pine	North line of Grove			1						
Pine	South line Olmsted			1						
Pleasant	East and west line of Third			2						
Pleasant	East line of Walnut			1						
Pleasant	West line of Forbes			1						
Prairie	West line of Douglas			1						
Prairie	West line of Garfield			1						
Prince	East line of Broadway			1						
Payne	North line of Minnehaha			1						
Payne	South line of Fauquier			1						
Pennsylvania	East and west line of Mississippi			3						
Preble	North line of Beaumont			1						
Ramsey	West line of Seventh					1				
Ramsey	West line of Forbes			1						
Ramsey	East line of Pleasant			1						
Randolph	East and west line of Seventh			1	1					
Randolph	East and West line of Victoria				2					
Richmond	South line of Seventh			1						
Right-of-way	North of Maryland, blow off			1						
Right-of-way	Blow off, 300 feet south of C. & P. aves			1						
Right-of-way	South line of C & P. aves. M. and B. O			1					1	
Right-of-way	Blowoff 2,000 north of Phalen and Como avenues			1						
Right-of-way	At pumping station			1					1	1
Robert	North line of Concord			1						
Robert	North and south line of Isabel			2						
Robert	North line of Delos			1						

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Robert	North line of Colorado			1						
Robert	South line of Plato			1						
Robert	South line of Chicago			1						
Robert	North and south line of Indiana			2						
Robert	North line of Fairfield			1						
Robert	North and south line of Third			2						
Robert	North line of Fourth			1						
Robert	North line of Fifth			1						
Robert	North and south line of Seventh			2						
Robert	North line of Eighth			1						
Robert	North line of Ninth			1						
Robert	South line of Eleventh			1						
Robert	North and south line of Twelfth			2						
Robert	South line of Fourteenth			1						
Rosabel	South line of Fourth			1						
Rosabel	North line of Fourth			1						
Rosabel	South line of Seventh			1						
Robie	West line of Anita			1						
Robie	East line of State			1						
St. Clair	East line of Seventh			1						
St. Peter	North line of Third			1						
St. Peter	North line of Fourth			1						
St. Peter	South line of Sixth			1						
St. Peter	North and south line of Seventh			2						
St. Peter	North and south line of Tenth			2						
St. Peter	N. line of College dividing bet. H. and L.S.			1						
Seventh	West line of Kittson			1						
Seventh	East line of Locust			1						
Seventh	East and west line of Broadway					2				
Seventh	East and west line of Jackson					2				
Seventh	Center of Robert, blow off	1								
Seventh	East line of Wabasha					1				
Seventh	East line of St. Peter				1					
Seventh	East line of Third				1					
Seventh	West line of Eagle					1	1			
Seventh	West line of Chestnut on hydrant			1						
Seventh	At Walnut H. and B. O	1		2						
Seventh	North and south line of Ramsey, M. & H.			1	1	1	1			
Seventh	West line of Leech				1					
Seventh	South line of McBoal					1				
Seventh	At Goodrich, blow off	1								
Seventh	North line of Yankee					1				
Seventh	On hyrant south of Mil. R. R., M. & H.		1			1				
Seventh	At Jefferson, hydrant and blow off	1	1							
Seventh	South line of Palace					1				
Seventh	At James, blow off	1								
Seventh	South line of Audubon					1				
Seventh	At Lee ave., blow off	1								
Sherman	South line of Exchange			1						
Sherman	South line of Wilkin			1						
Sherman	North and south line of Seventh			2						
Sherman	South line of Pleasant			1						
Sibley	South and north line of Third		1	1						
Sibley	South line of Fifth			1						
Sibley	North and south line of Seventh		1	1						
Sibley	North line of Ninth		1							
Sibley	North line of Tenth		1							
Sibley	North line of Spruce		1							
Sixth	West line of Kittson		1							
Sixth	West line of Neill		1							
Sixth	West line of Willius		1							
Sixth	East line of John		1							
Sixth	East line of Olive		1							
Sixth	East and west line of Broadway		2							
Sixth	West line of Rosabel		1							
Sixth	East line of Sibley		1							
Sixth	East and west line of Jackson		1							
Sixth	East line of Robert		1							
Sixth	East line of Minnesota		1							
Sixth	East and west line of Cedar		2							

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Sixth	East and west line of Wabasha		2							
Sixth	East line of Washington			1						
Sixth	South line of Seventh			1						
Sixth	South line of Exchange			1						
Sixth	North and south line of Fort			2						
Sixth	North line of Smith ave			1						
Smith st	West line of Wilkin			1						
Smith st	East and west line of Seventh			2						
Smith st	West line of Smith ave			1						
Smith ave	North and south line of Seventh			2						
Smith ave	North of Smith st			1						
Smith ave	North line of Ramsey			1						
Smith ave	North line of Sherman			1						
Smith ave	North line of Walnut			1						
Smith ave	North and south line of Third			2						
Smith ave	North line of Sixth			1						
Somerset	West line of John		1							
Somerset	East line of Pine		1							
State	Center of proposed levee					1				
State	South line of Indiana					1				
State	North line of Morrison					1				
State	North line of Isabel					1				
State	North line of Concord					1				
Summit ave	West line of Minnesota			1						
Temperance	North line of Eighth		1							
Temperance	North line of Tenth		1							
Temperance	North and south line of Grove		2							
Tenth	West line of Locust			1						
Tenth	East and west line of Broadway		2	2						
Tenth	West line of Canada		1							
Tenth	East and west line of Jackson		2							
Tenth	West line of Robert			1						
Tenth	East and west line of Cedar, M. & H.		1	1						
Tenth	Center of Wabasha, B. O		1							
Tenth	West line of St. Peter						1			
Tenth	On hydrant bet. St. Peter and Fort		1							
Tenth	West line of Fort			1						
Third	East and west line of Broadway				2					
Third	East line of Wakouta				1					
Third	East and west line of Jackson				2					
Third	West line of Minnesota			1						
Third	East line of St. Peter			1						
Third	West line of Washington			1						
Third	North and south line of Seventh			2						
Thirteenth	West line of Pine		1							
Thirteenth	East and west line of Mississippi			4						
Thirteenth	East and west line of Canada			2						
Thirteenth	East line of Jackson			1						
Twelfth	East line of Broadway		2							
Twelfth	West line of Jackson, H. and B. O.		2							
Twelfth	West line of Minnesota, on hydrant		1							
Twelfth	East line of Cedar, on hydrant		1							
Toronto	South line of Seventh			1						
Tennessee	East line of State			1						
Tuscarora	East line of Seventh			1						
Von Minden	East line of Western			1						
Wabasha	North line of Third			1						
Wabasha	South line of Fifth			1						
Wabasha	At Seventh			1						
Wabasha	North line of Ninth			1						
Wabasha	North and south line of Tenth			2						
Wabasha	North line of College			1						
Wakouta	North line of Third			1						
Wakouta	South line of Fifth			1						
Wakouta	South line of Sixth			1						
Wakouta	North and south line of Seventh		1	1						
Wakouta	North line of Eighth		1							
Wakouta	North line of Tenth		1							
Walnut	South line of Exchange		1							
Walnut	Noth and south line of Seventh		2							

LOCATION OF VALVES (LOW SERVICE)—*Concluded.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Walnut	South line of Pleasant		1							
Warsaw	South line of Seventh			1						
Washington	North line of Chestnut		1							
Washington	North and south line of Third		2							
Washington	North line of Fourth		1							
Washington	North line of Fifth		1							
Waverly Place	West line of Lafayette			1						
Waverly Place	East line of John			1						
Webster	South line of Seventh			1						
Webster	North line of Jefferson			1						
Western	North and south line of Seventh			2						
Western	North line of Goodhue			1						
Western	North and south line of Goodrich			2						
Wilkin	North line of Smith street			1						
Willius	North line of Fifth		1							
Willius	South line of Seventh		1							
Winifred	East line of Bancroft			1						
Winifred	West line of Anita			1						
Winifred	East and west line of State			2						
Winifred	East line of Clinton			1						
Winifred	South line of Concord			1						
Woodward	West line of Bradley		1							
Yankee	East line of Seventh		1							
Main line, old	Gate house at Lake Phalen							1		
Main line, old	South line of Omaha railroad			2						
Main line, old	Seventh, east line of Frank							1		
Main line, old	Seventh, east of Earl, M. and B. O.	1				1				
Main line, old	East of Cypress, B. O.	1								
Main line, old	East of Walsh, B. O.	1								
Main line, old	Payne and Ross					1				
Total		18	148	339	36	30	9	4	5	1

Number of valves laid this year 64
Total number of valves on low service 590

LOCATION OF VALVES (HIGH SERVICE.)

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Arundel	North line of Summit		1							
Arundel	South line of Selby		1							
Arundel	North line of Dayton		1							
Arundel	North line of Marshall		1							
Ashland	West line of Western			1						
Ashland	East line of Mackubin			1						
Ashland	East and west line of Dale			2						
Ashland	East line of Grotto			1						
Aurora	West line of Rice			1						
Aurora	East line of Jay			1						
Aurora	West line of Farrington			1						
Aurora	East and west line of Western			2						
Aurora	East line of Mackubin			1						
Aurora	West line of Dale			1						
Arcade	North line of Seventh				1					
Arcade	North line of Minnehaha				1					
Arcade	South line of Omaha R. R.				1					
Arcade	North line of Duluth R. R. B. O	1								
Arcade	North and south line of Case				2					
Astoria	North line of St. Anthony			1						
Bates	North line of Conway				1					
Bates	South line of Seventh				1					
Beech	East and west line of Earl			2						
Beech	East line of Forest			1						
Beech	East line of Mendota			1						
Beech	South line of Seventh			1						
Blair	West line of Western			1						
Blair	East line of Mackubin			1						
Blair	East line of Dale			1						
Broadway	North line of Valley			1						
Brewster	North line of University			1						
Brewster	North line of Sherburne			1						
Burr	South line of York			1						
Burr	North and South line of Case			2						
Bremer	North and south line of Waltham			2						
Bremer	South line of University			1						
Canada	North line of University			1						
Canada	South line of Valley			1						
Capital	West line of Western			1						
Carroll	West line of Rice			1						
Carroll	East line of Louis			1						
Carroll	West line of Farrington			1						
Carroll	East and west line of Western			2						
Carroll	East line of Mackubin			1						
Carroll	East and west line of Dale			2						
Carroll	East line of Grotto			1						
Carroll	West line of Miller			1						
Carroll	East and west line of Victoria			2						
Carroll	East and west line of Fairview			2						
Carroll	East and west line of Prior			2						
Conway	East and west line of Mendota			2						
Conway	East line of Maple			1						
Conway	East and west line of Bates			2						
Cedar	North and south line of Central			2						
Cedar	North and south line of University			2						
Cedar	South line of Viola			1						
Central ave	East line of Cedar			1						
Central ave	West line of Wabasha			1						
Central ave	East line of St. Peter		1							
Central ave	East line of Rice		1							
Central P. drive, E. and W	South of Central ave		2							
Charles	West line of Rice			1						
Charles	West line of Gaultier			1						
Charles	East line of Western			1						
Charles	East and west line of Dale			2						
Como ave	East and west line of Rice						2			
Como ave	South line of Thomas on hydrant		1							
Como ave	Eastline of Clarhorn on hydrant		1							
Como ave	South line of Lafond on hydrant		1							

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Como ave	East and west line of Gaultier, M. & H.		1				1			
Como ave	East line of Eifelt on hydrant		1							
Como ave	North line of VanBuren on hydrant		1							
Como ave	North line of Minnehaha on hydrant		1							
Como ave	West line of Virginia on hydrant		1							
Como ave	East and west line of Western, M. & H.		1				2			
Como ave	South line of Atwater, B. O.			1						
Como ave	South line of Topping						1			
Como ave	East line of Dale						1			
Cherry	East line of Hoffman			1						
Case	East and west line of Arcade				2					
Case	West line of Greenbrier				1					
Case	East and west line of Edgerton				2					
Case	West line of DeSoto				1					
Dale	South line of Goodrich				1					
Dale	North and south line of Summit				1	1				
Dale	At Ashland B. O	1								
Dale	North and south line of Marshall					2				
Dale	North and south line of University		1			1		1		
Dale	North line of Lafond		1							
Dale	North line of Minnehaha							1		
Dale	North and south line of Front, M. & B.O.			1				2		
Dale	Blow-off at Nieger Lake			1						
Dale	North line of Como and Phalen avenue							1		
Dale	Blow-off at G. L. cemetery			1						
Dale	Approach to reservoir, M. & B. O			2			2	1		
Dale	South line of McCarron road, M. & B. O.			1			1			
Dayton	West line of Summit				1					
Dayton	East and west line of Western				2					
Dayton	East line of Mackubin				1					
Dayton	East and west line of Dale			1	1					
Dayton	East line of Grotto			1						
Dayton	West line of Miller			1						
Dayton	East and west line of Victoria			2						
Earl	North line of Beech				1					
Earl	South line of Seventh				1					
Edmund	West line of Rice			1						
Edmund	West line of Gaultier			1						
Edmund	East and west line of Western			2						
Edmund	East line of Mackubin			1						
Edmund	East and west line of Dale			2						
Eichenwald	South line of Seventh			1						
Ellen	West line of Rice			1						
Ellen	West line of Gaultier			1						
Ellen	East and west line of Western			2						
Ellen	East line of Mackubin			1						
Ellen	East line of Dale			1						
Euclid	West line of Cypress			1						
Euclid	East and West line of Mendota			2						
Farrington	North line of Summit			1						
Farrington	North line of Laurel			1						
Farrington	North and south line of Dayton			2						
Farrington	North line of Nelson			1						
Farrington	South line of Carroll			1						
Fauquier	East and west line of Earl			2						
Fauquier	East and west line of Seventh			2						
Fauquier	East and west line of Arcade			2						
Fuller	West line of Rice			1						
Fuller	East line of Louis			1						
Fuller	West line of Farrington			1						
Fuller	East and west line of Western			2						
Fuller	East line of Mackubin			1						
Fuller	West line of Dale			1						
Fifth	East and West line of Bates			2						
Floral	South line of Summit		1							
Fourth	West line of Mendota			1						
Fourth	East line of Maple			1						
Fourth	East and west line of Bates			2						
Francis	West line of Mendota			1						
Front	East line of Gaultier				1					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Front	East and west line of Western				2					
Front	East line of Mackubin				1					
Front	East and west of Dale street, Main				2					
Forest	North line of York			1						
Forest	South line of Case			1						
Fairmount	East of St. Albans			1						
Feronia	West line of Bremer			1						
Feronia	East line of Prior			1						
Freemont	East line of Mendota			1						
Grand	East line of Oakland			1						
Grand	East and west line of Dale			2						
Grand	East line of Grotto			1						
Grand	East and west line of Victoria			2						
Grove	B. O. at Trout Brook sewer	1								
Grove	East line of Monroe Place					1				
Grove	B. O. at Pine	1								
Grotto	South line of Grand			1						
Grotto	North and south line of Summit			2						
Grotto	South line of Holly			1						
Grotto	South line of Ashland			1						
Grotto	South line of Laurel			1						
Grotto	South line of Hague			1						
Grotto	South line of Selby			1						
Grotto	South line of Dayton			1						
Grotto	South line of Marshall			1						
Goodrich	East and west line of Dale			2						
Goodrich	East line of Grotto			1						
Goodrich	East and west line of Victoria			2						
Greenbrier	North line of Seventh				1					
Hoffman	South line of Seventh			1						
Hoffman	South line of McLean			1						
Hoffman	North line of River			1						
Holly	West line of Western			1						
Holly	East line of Mackubin			1						
Holly	East and west line of Dale			2						
Holly	East line of Grotto			1						
Hague	West line of Dale			1						
Hague	East line of Grotto			1						
Hague	West line of Miller			1						
Hudson	East and west line of Bates			2						
Hastings	West line of Mound				1					
Iglehart	West line of Wabasha			1						
Iglehart	East and west line of Rice			2						
Iglehart	West line of Summit Place			1						
Iglehart	West line of Louis			1						
Iglehart	West line of Farrington			1						
Iglehart	East and west line of Western			2						
Iglehart	East line of Mackubin			1						
Iglehart	East and west line of Dale			2						
Iglehart	East line of Grotto			1						
Iglehart	West line of Miller			1						
Iglehart	East line of Victoria			1						
Iglehart	East and west line of Prior			2						
Jackson	North line of University			1						
Jackson	South line of Valley			1						
Jackson	North and south line of Como				1	1				
Jay	South line of Marshall			1						
Jay	South line of Fuller			1						
Kent	South line of Holly		1							
Kent	South line of Ashland		1							
Kent	South line of Laurel		1							
Kent	South line of Selby		1							
Kent	North line of Marshall		1							
Kent	North line of Iglehart		1							
Laurel	West line of Nina			1						
Laurel	East line of Virginia			1						
Laurel	East and west line of Western			2						
Laurel	East line of Mackubin			1						
Laurel	East and west line of Dale			2						
Laurel	East line of Grotto			1						

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Laurel	West line of Miller			1						
Lawton	South line of Summit			1						
Lincoln	West line of Oakland			1						
Lincoln	East and west line of Dale			2						
Lincoln	East line of Grotto			1						
Lincoln	East and west line of Victoria			2						
Louis	North line of Nelson			1						
Louis	South line of Carroll			1						
Louis	South line of Rondo			1						
Louis	South line of St. Anthony			1						
Louis	South line of Ma rtin			1						
Louis	South line of Fuller			1						
Lafond	West line of Western			1						
Lafond	East line of Mackubin			1						
Lafond	East and west line of Dale			1						
Lynnhurst	North line of Feronia			1						
Lynnhurst	South line of University			1						
Lynnhurst, E.	East line of Lynnhurst, W.			1						
McCarron Road	South of pumping stat'on						1			
McCarron Road	Blowoff at Trout brook			1						
McCarron Road	South of McCarron lake, M. & B. O.			1			1			
McCarron Road	West line of Dale						1			
Mackubin	North line of Summit			1						
Mackubin	South line of Holly			1						
Mackubin	South line of Ashland			1						
Mackubin	South line of Laurel			1						
Mackubin	South line of Selby			1						
Mackubin	North and south line of Dayton			2						
Mackubin	North line of Marshall			1						
Mackubin	North line of Iglehart			1						
Mackubin	North line of Carroll			1						
Mackubin	South line of Aurora			1						
Mackubin	North line of Rondo			1						
Mackubin	North line of St. Anthony			1						
Mackubin	North line of Martin			1						
Mackubin	North and south line of University			2						
Maple	South line of Hudson			1						
Maple	North line of Euclid			1						
Maple	North line of Conway			1						
Maple	South line of Fourth			1						
Maple	North line of Fifth			1						
Maple	South line of Seventh			1						
Margaret	East line of Forest			1						
Margaret	East and west line of Mendota			2						
Margaret	East and west line of Seventh			2						
Margaret	East line of Greenbrier			1						
Martin	East and west line of Rice			2						
Martin	West line of Louis			1						
Martin	West line of Farrington			1						
Martin	East and west line of Western			2						
Martin	East line of Mackubin			1						
Martin	East line of Dale			1						
Maria	North line of Plum			1						
Maria	North line of Conway			1						
Maria	North line of Hudson			1						
Maria	South line of Ravine			1						
Maria	South line of Fourth			1						
Maria	South line of Sixth			1						
Maria	North and south line of Seventh			2						
Marshall	West line of Western			1						
Marshall	East line of Mackubin			1						
Marshall	East and west line of Dale			1	1					
Marshall	West line of Grotto				1					
Marshall	East line of Victoria				1					
Mendota	North line of Hudson				1					
Mendota	B. O. at Euclid	1								
Mendota	South line of Fourth				1					
Mendota	North line of Margaret, M. and B. O	1			1					
Mendota	N. and S. line of Seventh, M. and B. O.	1		1	1					
Mendota	South line of Fauquier			1						

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
Mt. Airy	East line of Linden			1						
Mt. Airy	West line of Warren			1						
Maryland	East and west side of Dale street main.				2					
Marion	North line of University			1						
Marion	North line of Ellen			1						
Marion	North line of Charles			1						
Marion	North line of Edmund			1						
Marion	North line of Thomas			1						
Minnehaha	West line of Dale				1					
Nelson	West line of Summit			1						
Nelson	East line of Farrington			1						
Nelson	East line of Western			1						
Nina	North line of Summit			1						
Oakland	South line of Ramsey			1						
Oakland	East line of Lawton			1						
Oakland	South line of Lincoln			1						
Oakland	South line of Summit			1						
Oakley	East line of Prior			1						
Park Place	South line of Summit		1							
Park ave	North line of Martin			1						
Park ave	North and south line of University			2						
Park ave	North line of Sherburne			1						
Pine	North line of Grove					1				
Pine	North line of Thirteenth			1						
Pine	North line of Olmsted			1						
Pine	North and south line of Williams			2						
Portland	West line of Western			1						
Portland	East line of Mackubin			1						
Portland	East and west line of Dale			2						
Portland	East line of Grotto			1						
Pennsylvania	West line of Olive			1						
Prior	North line of St. Anthony				1					
Prior	South line of University				1					
Payne	North line of Whitall			1						
Payne	North line of Wells			1						
Payne	North line of York			1						
Payne	North and south line of Case			2						
Payne	North line of Jenks			1						
Payne	North line of Lawson			1						
Reservoir	On reservoir grounds		1		1					2
Rice	North and south of Summit, M & O. B.	1		1		1				
Rice	North line of St. Anthony					1				
Rice	North and south line of University, M&H		1			1	1			
Rice	North line of Ellen, on H		1							
Rice	North line of Charles, on H		1							
Rice	North line of Edmund, H. and B. O.		2							
Rice	North and south line of Como				1		1			
Robert	South line of Aurora			1						
Robert	North and south line of University			2						
Robert	North line of Valley			1						
Rondo	West line of Rice			1						
Rondo	East line of Louis			1						
Rondo	West line of Farrington			1						
Rondo	East and west line of Western			2						
Rondo	East line of Mackubin			1						
Rondo	East line of Dale			1						
Rondo	East and west line of Prior			2						
Reaney	East and west line of Earl			2						
Reaney	East and west line of Seventh			2						
Reaney	East and west line of Arcade			2						
Ramsey	East line of Summit			1						
Ross	West line of Duluth			1						
Ross	East and west line of Earl			2						
Ross	South line of Seventh			1						
Ravoux	South line of St. Anthony		1							
Ravine	East and west line of Bates		2							
St. Anthony	West line of Rice			1						
St. Anthony	West line of Louis			1						
St. Anthony	West line of Farrington			1						
St. Anthony	East and west line of Western			2						

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
St. Anthony	East line of Mackubin			1						
St. Anthony	East line of Dale			1						
St. Anthony	East and west line of Prior			2						
St. Peter	South line of Iglehart			1						
St. Peter	South line of Tilton			1						
St. Peter	North and south line of Martin			2						
St. Peter	South line of University			1						
Selby	West line of Summit			1						
Selby	West line of Nina			1						
Selby	West line of Farrington			1						
Selby	East and west line of Western			2						
Selby	East line of Mackubin			1						
Selby	East and west line of Dale			2						
Selby	East line of Grotto			1						
Selby	West line of Miller			1						
Seventh	East and west line of Earl M. & B. O.		1			1				
Seventh	South line of Fauquier					1				
Seventh	B. O. at Mendota	1								
Seventh	North line of Beech					1				
Seventh	West line of Maple, M. & B. O.	1				1				
Seventh	West line of Hoffman, M. & B. O.	1				1				
Sherburne	West line of Cedar			1						
Sherburne	East line of Park			1						
Sherburne	East line of Rice			1						
Sinnen	South line of Seventh			1						
Suction main	N. E. of pumping station, M. & B. O.			1				2		
Summit	East line of Wabasha			1						
Summit	East line of St. Peter			1						
Summit	East and west line of Rice, M. & B. O.	1		1	1					
Summit	South line of Dayton			1						
Summit	North line of Nina			1						
Summit	East line of Western			1						
Summit	East line of Mackubin				1					
Summit	B. O. at Oakland	1								
Summit	East and west line of Dale				2					
Summit	East line of Grotto				1					
Summit	East and west line of Victoria				2					
Summit	East line of Chatsworth				1					
Summit	East and west line of Lexington				2					
Summit	East line of Griggs				1					
Summit Place	North line of Nelson			1						
Summit Place	South line of Carroll			1						
Summit Place	South line of Rondo			1						
Summit Place	South line of St. Anthony			1						
Summit Place	South line of Martin			1						
Summit Place	South line of Fuller			1						
St. Albans	South of Kenwood Park drive			1						
St. Albans	South line of Fairmount			1						
St. Albans	North line of Marshall		1							
Sims	West line of Arcade			1						
Sims	West line of Greenbrier			1						
Short	East line of Hoffman			1						
Third	East and west line of Mendota			2						
Third	East line of Maple			1						
Third	East and west line of Bates			2						
Third	South line of Summit			1						
Thirteenth	B. O. at Broadway	1								
Tilton	East line of St. Peter			1						
Tilton	East line of Rice			1						
Thomas	West line of Western			1						
Thomas	East line of Mackubin			1						
Thomas	East line of Dale			1						
Topping	West line of Como			1						
University	South line of Valley					1				
University	B. O. 275 feet west of Canada	1								
University	West line of Robert					1				
University	East and west line of Rice M & B. O	1			1	1				
University	West line of Gaultier				1					
University	East and west line of Western				2					
University	East line of Mackubin				1					

LOCATION OF VALVES (HIGH SERVICE)—*Concluded.*

Street.	Location.	3 inch.	4 inch.	6 inch.	12 inch.	16 inch.	20 inch.	24 inch.	30 inch.	36 inch.
University	East and west line of Dale				1		1			
University	East line of St. Albans, on H		1							
University	East line of Grotto, on H		1							
University	East line of Avon, on H		1							
University	East and west line of Victoria, M. & H.		1				2			
University	East line of Milton, on H		1							
University	East line of Chatsworth, on H		1							
University	East line of Oxford, on H		1							
University	East and west line of Lexington, M&H		1				2			
University	East line of Dunlap, on H. B			1						
University	East line of Griggs, on H		1							
University	East line of Syndicate on H. B			1						
University	East and west line of Hamline M. & H.		1				2			
University	East line of Albert on H. B			1						
University	East line of Pascal on H		1	1						
University	East line of Simpson on H. B			1						
University	East line of Asbury on H. B			1						
University	East and west line of Snelling, M. & H.		1				2			
University	East line of Fry on H. B		1							
University	East line of Aldine on H		1							
University	East line of Wheeler on H		1							
University	East and west line of Fairview, M. & H.		1				2			
University	East line of Prior on H		1							
Valley	West line of Broadway					1				
Viola	West line of Cedar			1						
Viola	East line of Park			1						
Viola	East line of Rice			1						
Virginia	North line of Summit			1						
Virginia	South line of Selby			1						
Virginia	North and south line of Dayton			2						
Virginia	North line of Nelson		1							
Virginia	South line of Iglehart		1							
VanBuren	West line of Western			1						
VanBuren	West line of Dale			1						
Wabasha	North line of Iglehart			1						
Wabasha	North and south line of Central		1	1						
Western	South line of Holly, M. & B. O.	2			1					
Western	North and south line of Dayton				1	1				
Western	North line of Rondo, M. & B. O	1				1				
Western	North line of University					1				
Western	B. O. at Ellen	1								
Western	North line of Lafond					1				
Western	South line of Como					1				
Williams	West line of Olive			1						
Williams	East line of Mississippi			2						
Waltham	East line of Prior		1							
Wilder	North line of Iglehart			1						
Wilder	North line of Carroll			1						
Wilder	South line of St. Anthony			1						
York	East and west line of Arcade			2						
York	West line of Greenbrier			1						
Total		20	59	406	64	24	26	8		2

Number of valves laid this year on high service... 168
Total number of valves on high service..... 609

Total number of valves on high and low service...1199

INVENTORY OF STOCK AND TOOLS,

DECEMBER 1 1888.

PIPES, FITTINGS, ETC.

12 feet 36 inch pipe.
132 " 30 " "
2,376 " 24 " "
372 " 20 " "
66 " 16 " "
24 " 12 " "
120 " 6 " "
1,668 " 4 " "
246 " 3 " "
7 30-inch curvature pipe.
5 24 " " "
2 20 " " "
1 12 " " "
9 6 " " "
14 4 " " "
1 12 " quarter bend.
4 6 " " "
6 4 " " "
1 36 " sleeve.
1 30 " "
3 24 " "
3 20 " "
2 16 " "
5 12 " "
5 6 " "
29 4 " "
2 20 " plugs.
8 16 " "
2 12 " "
57 6 " "
13 4 " "
2 4 " hoods.
1 30x6-inch 4-way branch.
1 24x12 " " "
5 24x6 " " "
2 20x6 " " "
1 16x12 " " "
3 16x6 " " "
2 24x6 " 3-way "
5 24x4 " " "
4 20x6 " " "
1 16x6 " " "
1 16x4 " " "
1 16x3 " " "
2 12x12 " " "
6 12x6 " " "
4 12x4 " " "
1 12x3 " " "
16 6x6 " 4-way "
7 6x6 " 3-way "
10 6x4 " 4-way "
24 6x4 " 3-way "
7 6x3 " " "
2 4x4 " 4-way "
1 4x4 " 3-way "
1 24x20 " Y
1 20 " Y
1 20x16 " Y
2 Reducers from 20 to 12 inch.
1 Reducer from 16 to 12 inch.
2 Reducers from 12 to 6 inch.
2 Reducers from 6 to 4 inch.
7,400 Pounds of pig lead.
225 Pounds of hemp packing.
1 Can blasting powder.

GATES AND GATE DUPLICATES.

1 20-inch gate.
1 16 " "

GATES AND GATE DUPLICATES.

3 12 gates.
11 6 "
14 4 "
15 3 "
1 2½ "
45 2 stop and waste valves.
57 2 valves.
2 1½" "
11 1¼" "
22 Iron gate boxes.
Miscellaneous lot of gate duplicates.
24 Mathew hydrants.
18 Casings for sprinkling pipes.
Miscellaneous lot of hydrant duplicates.
Kit of tools for repairing hydrants.

PIPE LAYING TOOLS.

8 Lead ladles.
7 Lead pots.
6 Lead furnaces.
5 Derricks.
2 Bagnall & Land diaphragm pumps.
137 Shovels.
220 Picks.
13 Sledge hammers.
7 Striking hammers.
11 Crowbars.
18 Rock drills.
6 Plug and feather drills.
7 Blasting chains.
247 Blasting timbers.
10 Set of calking tools.
1 Pipe cutting machine.

CONNECTION STOCK AND TOOLS.

150 Feet ½ to 2-inch galvanized pipe.
2 Scales.
1 Lot of pipe fittings from ½ to 2-inch.
4,998 Pounds ½ to 1½ inch lead pipe extra strong.
2 Kits plumbing tools, complete.
3 Muller topping machines, complete.
7 Set of 4-inch pipe moulds.
185 Bingham & Morgan stop boxes.
95 Corporation cocks from ½ to 1 inch.
85 Stop and waste.
300 Pounds solder.
Miscellaneous lot of duplicates for connections.

STABLE AND MISCELLANEOUS ACCT.

4 Horses.
2 Large pipe trucks for hauling, from 12 to 30 inch pipe.
1 Light truck.
3 Buggies.
1 Light bob-sleigh.
2 Cutters.
4 Sets single harness.
8 Horse blankets.
1 Buffalo robe.
A quantity of feed for horses.
1 Anvil.
20 Jackscrews.
2 Farmers' kettles.
98 Feet ½ inch hose.
28 Meters from ½ to 4 inches.

St. Paul Water Works Pumping Station,

December 1, 1888.

To the Hon. Board of Water Commissioners of the City of St. Paul, Minn:

Sirs: The Fourth Annual Report of the operation of these works, being for the year ending November 30, 1888, is herewith submitted. The entire works here are in good condition, and have given good satisfaction in the past year.

There were 484,507,680, gallons of water pumped during the year, making a daily average of 1,327,418 gallons. Total coal consumed during the year 530 tons, making a daily average of 2,904 pounds, including steam heating for building and changing boiler.

Respectfully Submitted,

Martin Feist, Engineer.

ST. PAUL WATER WORKS PUMPING STATION. ENGINEER'S REPORT

FOR THE YEAR ENDING NOVEMBER 30, 1888. OPERATION OF ENGINES NOS. 1 AND 2.

MONTHS.	No. of Hours Pumping.		No. of Revolutions.		No. of Gallons Water Pumped.		Average No. of Gallons Pumped per day.	Pounds of Coal used.		Average No. of Pounds Coal used per day.	Pressure on Pumps.
	Engine No. 1.	Engine No. 2.	Engine No. 1.	Engine No. 2.	Engine No. 1.	Engine No. 2.		Engine No. 1.	Engine No. 2.		
December, 1887	732½	11½	774,600	13,500	24,787,200	918,000	829,200	71,422	2,595	2,387	60
January, 1888	744	32	904,500	34,700	28,944,000	2,359,600	1,009,793	80,681	6,045	2,797	61
February, "	696	.....	931,600	.....	29,811,200	.....	1,027,972	76,761	.....	2,646	62
March, "	727	17	984,100	17,860	31,491,200	1,214,800	1,055,032	80,185	3,165	2,688	62½
April, "	596½	25½	951,400	31,200	30,444,800	2,121,600	1,085,546	67,279	4,600	2,393	60½
May, "	728	15¾	958,500	17,600	30,672,000	1,196,800	1,028,025	66,835	3,034	2,253	61
June, "	452¾	267¼	645,200	343,800	20,646,400	23,378,400	1,467,460	42,884	42,092	2,832	75
July, "	441	298	676,600	448,100	21,651,200	30,470,800	1,681,354	44,289	56,236	3,242	75
August, "	500	276½	809,900	366,400	25,916,800	24,915,200	1,639,742	51,829	52,154	3,354	75
September, "	450	297¾	749,200	401,400	23,974,400	27,274,800	1,708,306	47,885	58,075	3,552	85
October, "	523½	230½	982,700	279,500	31,446,400	20,230,000	1,666,980	61,660	41,421	3,647	85
November, "	605½	60¾	1,358,600	123,100	43,475,200	8,418,400	1,729,786	85,108	14,147	3,308	72
Total	71,943¾	1,531¾	10,726,900	2,077,160	343,260,800	141,246,880		776,818	283,564		

Total number of gallons pumped during the year, 484,507,680.
Total number of tons coal consumed during the year, 530.
NOTE.—Coal for heating engine house and Engineer's house and changing boiler is included in above statement.

MARTIN FEIST, Engineer.

INVENTORY OF TOOLS AND STOCK AT THE PUMPING STATION.

1 Vise.
2 Sets screw dies and taps from ¼ to 2 inches
1 Set pipe dies and taps from ¼ to 1 inch.
2 Pipe cutters.
1 Pair pipe tongs.
1 24 inch pipe wrench.
1 12 inch pipe wrench.
1 20 inch Coe's wrench.
1 14 inch Coe's wrench.
1 8 inch Coe's wrench.
1 6 inch Coe's wrench.
1 Portable blacksmith's forge.
1 Anvil.
2 Pairs of blacksmith tongs.
1 Sledge hammer.
1 Hand hammer.
1 Soft hammer.
4 Files.
1 Saw.
1 Axe.
1 Hatchet.
1 1½ ton chain block.
35 Feet 1 inch rope.
50 feet linen hose, 1¼ inch.
200 feet linen hose, ¾ inch.
18 Feet steam hose, 7 inch.
3 Oil tanks.
2 1 quart oil cans.
1 2 quart oil can.
3 Hand oilers.
1 quart measure.
75 Feet ¾ ropes and block.
1 12 inch level.
1 Steel coal barrow.
1 Sand barrow.
2 Coal scoops.
1 Fairbank scale, 6 ton.
1 Fairbank scale, 1 ton.
1 Grindstone.
6 Large lanterns.
4 Small lanterns.
1 Clock.
1 Writing Desk.
4 Chairs.
2 Ladders.
1 Step-ladder.
1 Good cupboard.
1 Clothing cupboard.
1 Oil and Waste cupboard.
1 Work bench.
6 Spittoons.
1 Ratchet, brace and bit.
2 8 inch long jack screws.
1 Draw knife.
1 Edson pressure recording instrument.
200 Tons hard coal.
1½ Cords slabs.
50 Pounds waste.
10 Gallons cylinder oil.
25 Gallons engine oil.
5 Gallons kerosene oil.
5 Pounds hemp packing.
10 pounds piston packing.
3 Pounds tallow.
1 Box soap.
2 Pounds candle wicking.

ENGINEER'S REPORT.

ST. PAUL, MINN., Dec. 1, 1888.

President Hoyt and Gentlemen of the Board:

During the past season your High Service reservoir located on the elevation immediately west of McCarron's Lake, has been completed by McArthur Bros., the work having been under the supervision of their able superintendent, Mr. Chas. H. Clark.

The reservoir is now full, its water line being about 310 feet above the low water mark of the Mississippi at St. Paul and about 100 feet above the high portion of the city.

That the ends for which the reservoir was built have been attained is shown by the equable pressure now given at the various points of the High service and by the increased duty of the pumps, which are now able to run at their full capacity when in use.

As a reserve supply, in case of accident to the pumps, or to the Vadnais conduit, the reservoir will supply the High service about twelve days at the present rate of consumption.

The total cost, including engineering and inspection, (which together equal two and one-half per cent of the whole) and labor done on borrow pits under the direction of the Board, has been about one hundred fifty-eight thousand dollars ($158,000.00).

Great credit is due McArthur Bros. and Mr. Clark for the thorough, honest and workmanlike manner in which they have complied with plans and specifications.

Respectfully Submitted,

H. H. HARRISON, Eng'r.

JOHN B. HAWLEY, Con. Eng'r.

Engineers employed in construction of the High service reservoir.

ATTORNEY'S REPORT.

St. Paul, Minn., Dec. 1, 1888.

To the Honorable Board of Water Commissioners:

Gentlemen: During the year ending November 30, 1888, no claims for right of way have been presented to the board for adjustment. Some small claims for damages have been presented and adjusted by the board.

I respectfully call your attention to paragraphs four and five of my report for 1886, in relation to increased water supply.

The motion for a new trial in case of Wilson & Rogers vs. The Board of Water Commissioners referred to in my report for 1885 is still pending undecided.

On the 16th day of December, 1887, summons and complaint were served on the president of the board by John B. Brisbin, attorney for Olive Biron, claiming damage for destroying mill site and diverting the water from Vadnais lake in the sum of about forty-eight thousand dollars ($48,000). The complaint was demurred to and was submitted to the court on briefs on the 1st day of October, 1888, and on the 19th day of November, 1888, Judge Brill filed an opinion sustaining the demurrer with leave to answer. No further action has been taken by plaintiff to date.

Respectfully,

S. P. FOLSOM,

Attorney.

TREASURER'S REPORT.

OFFICE OF THE CITY TREASURER,
ST. PAUL, MINN., Dec. 1, 1888.

To the Honorable the President and Board of Water Commissioners of the City of St. Paul:

GENTLEMEN: I have the honor to submit to you the following report of the receipts and disbursements of this office from December 1, 1887, to December 1, 1888:

RECEIPTS.

Balance December 1, 1887			$2,852.11
Dec. 1,	J. Caulfield, Secretary	$1,500.00	
Dec. 6,	" "	3,000.00	
Dec. 22,	" "	3,000.00	
Dec. 28,	" "	2,000.00	
Dec. 29,	" "	3,000.00	
Jan. 3, 1888	" "	2,000.00	
Jan. 11,	" "	8,000.00	
Jan. 28,	" "	2,000.00	
Feb. 18,	" "	4,000.00	
Feb. 23,	" "	2,500.00	
Mar. 12.	" "	4,000.00	
Mar. 22,	Water frontage tax	1,881.49	
Mar. 26,	J. Caulfield, Secretary	4,000.00	
April 2,	Proceeds from bonds	300,975.00	
May 19,	J. Caulfield, Secretary	5,000.00	
May 29,	" "	5,000.00	
June 18,	" "	5,000.00	
June 27,	" "	5,000.00	
July 23,	" "	20,000.00	
July 25,	Water frontage tax	39,545.92	
July 30,	J. Caulfield, Secretary	10,000.00	
Aug. 18,	" "	30,000.00	
Sept. 15,	" "	23,840.22	
Sept. 28,	" "	30,000.00	
Oct. 23,	" "	10,000.00	
Nov. 12,	" "	14,000.00	
Nov. 20,	" "	5,000.00	
Nov. 21,	Water frontage tax	1,635.19	
Nov. 22,	J. Caulfield, Secretary	6,000.00	
Nov. 28,	" "	6,205.38	
			558,083.20
Total			$560,935.31

DISBURSEMENTS.

Water Department Warrants paid—		
December, 1887	$14,965.33	
January, 1888	10,691.16	
February	7,790.56	
March	5,735.07	
April	187,042.16	
May	38,072.71	
June	23,196.60	
July	43,333.12	
August	39,505.41	
September	53,226.92	
October	71,362.68	
November	50,555.89	
		$545,477.61
Balance December 1, 1888		15,457.70
		$560,935.31
Balance December 1, 1888	$15,457.70	
Old Water Company's account bal. Dec. 1, 1888 (see statement following)	149.59	
		$15,607.29

OLD WATER COMPANY COUPON ACCOUNT.

Balance December 1, 1887	164.39	
Jan. 13, J. Caulfield, Secretary	6,416.00	
July 14, " "	6,416.00	
		$12,996.39

DISBURSEMENTS.

Dec. 28, Coupons paid		$ 80.00	
Jan. 21, " "		5,760.00	
Feb. 7, " "		560.00	
Feb. 21, " "		20.00	
May 21, " "		40.00	
July 27, " "		40.00	
Aug. 1, " "		20.00	
Aug. 11, " "		5,240.00	
Aug. 24, " "		1,040.00	
		$12,800.00	
Expense account Old Water Company coupon account—			
Jan. 21, Exchange on coupons paid	$28.80		
Aug. 11, " " "	15.00		
Aug. 24, " " "	3.00		
		$46.80	
			$12,846.80
Balance December 1, 1888			149.59
			$12,996.39

Respectfully submitted,

GEORGE REIS,

City Treasurer.

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